OCCASIONAL PAPERS

OF THE

California Academy of Sciences

No. 89, 134 pages, 263 figures.

THE GENERA STENOPOGON LOEW AND SCLEROPOGON LOEW IN AMERICA NORTH OF MEXICO (Diptera : Asilidae)

By

J. Wilcox

21171 Mohler Place, Anaheim, California
Research Associate, California Academy of Sciences

ABSTRACT: Stenopogon Loew occurs in the western part of North America from Saskatchewan, Canada, to Baja California, Mexico. Forty-eight of the 51 species occur in California and relatively few species in other areas. New species described from California are: Stenopogon adelantae, S. antoniae, S. bakeri, S. bartonae, S. blaisdelli, S. bromleyi, S. brookmani, S. diablae, S. englandi, S. figueroae, S. inyae, S. jurupae, S. kirkwoodi, S. linsleyi, S. lomae, S. macswaini, S. melanderi, S. mojavae, S. obispae, S. ozenae, S. pinyonae, S. powelli, S. rafaelae, S. tolandi, and S. williamsi. The species are divided into nine groups; keys to the groups and species, descriptions, figures of the antennae and male genitalia, and several synonymns, are given. Scleropogon Loew occurs from Canada to Oaxaca, Mexico, but is not found in the northeastern provinces or states, or in Baja California Norte. Keys, descriptions, and figures of the antennae and male genitalia are given for 15 species. One new species, Scleropogon haigi from Arizona and Mexico is described and notes are given on several doubtful species. The distribution of the related genus Ospriocerus Loew is given along with a few notes.

CONTENTS

INTRODUCTION

The most recent paper (Bromley 1937) on the Nearctic Stenopogon Loew included Scleropogon Loew as a subgenus, and several species now placed in Ospriocerus Loew. Species described since 1937 in Stenopogon Loew are: "cazieri" Brookman (1941) from California; "huachucanus" Hardy (1942) from Arizona; "neojubatus" Wilcox and Martin (1945) from California; and the following by Bromley (1951): "boharti" from Arizona, "floridensis" from Florida; "tinkhami" from Texas; and "utahensis" from Utah. These species are placed here as follows: in Stenopogon Loew, "cazieri,""neojubatus,""boharti," and "utahensis"; in Scleropogon Loew, "huachucanus" and "floridensis"; and in Ospriocerus Loew, "tinkhami."

Martin (1968a) reviewed Stenopogon Loew from Mexico and included Scleropogon Loew as a synonymn of Stenopogon Loew. Martin (1968b) reviewed Ospriocerus Loew from North America and included the following new species from the Nearctic region: "brevis" from California; "galadae" from Texas;

"tequilae" from Mexico and Arizona; "vallensis" from Idaho and Oregon; and "villus" from Texas. Stenopogon tinkhami Bromley was not included but it appears to be based on a red-legged female of Ospriocerus longulus (Loew).

Hull (1962) treated Stenopogon Loew, Scleropogon Loew, and Ospriocerus Loew as separate genera but his grouping of the species is not the same as given by Martin and Wilcox (1965) or the one used here. Martin (1970) still lists Scleropogon Loew as a synonymn and reduces Ospriocerus Loew to a subgenus of Stenopogon Loew. The three genera are retained here as they can be separated by quite reliable characters. The characters used apply only to the American species as only a few of the other species are available. The absence of hairs or bristles on the hypopleura (metapleura) separates Stenopogon Loew from both Scleropogon Loew and Ospriocerus Loew.

The Palearctic species have the hypopleura bare and would be placed in Stenopogon Loew. They are divided into two groups (Engel, 1929) which may have subgroups. Stenopogon sabaudus (Fabricius) (the type-species of Stenopogon Loew) has the first posterior cell open and the male hypandrium undivided and is most similar to the Nearctic species Stenopogon inquinatus Loew; they occur throughout the Palearctic Region. Stenopogon heteroneuros (Macquart) and related species (Martin, 1970, Avus Group) have the first posterior cell closed and petiolate, are quite large heavy bodied flies, with a small hypandrium most similar to Ospriocerus Loew; they occur mainly in Asia and eastern Europe.

The genera Stenopogon Loew, Scleropogon Loew, and Ospriocerus Loew belong in the subfamily Dasypogoninae, tribe Stenopogonini (Hull 1962). As a group they are distinct from the other genera in that the head in anterior view is nearly round and not noticeably broader than high. The face at the antennae is quite narrow, gradually widens below, and in lateral view the lower half or more is slightly to strongly swollen and is covered with long bristles or hairs or both. The abdomen is long and quite slender, longer than the wings; the male genitalia are nonrotate and the females have an apical circlet of strong spines. The nonrotate male genitalia constitute a unique character in the North American genera of this tribe with the exception of Heteropogon Loew, which has the head in anterior view broader than high, the abdomen quite short and broad, and the wings subequal to the length of the abdomen.

Stenopogon Loew has the hypopleura (metapleura) bare of hairs or bristles. The second segment of the palpi is three times as long as broad or more. The occipital bristles are usually slender and the upper ones curved forward at nearly a right angle. Abdominal tergites 2-3 are without lateral bristles except in Stenopogon boharti Bromley. Posterior cell 1 of the wings is open and posterior cell 4 is usually open, but closed at times. The species vary in size, shape, color, and in other ways and have been arranged in groups (see key to the groups of species). Their distribution in North America is distinct from the other genera. They occur from British Columbia to Minnesota, southwest from Minnesota to Baja

California, with a few species occurring as far east as Nebraska, Kansas, and New Mexico. The largest concentration of species is in California west of the Sierras and the southern mountains (fig. 1).

Scleropogon Loew has the hypopleura clothed with hairs or bristles or both. The second segment of the palpi is about two times as long as broad. The occipital bristles are strong and slightly curved forward. Abdominal tergites 1-3 have lateral bristles except in S. kelloggi (Wilcox). Posterior cell 1 is open in about half of the species and closed and petiolate in the others; posterior cell 4 varies about the same amount. The gibbosity extends about 3/5 the distance from the oral margin to the antennae and the mystax is composed mainly of bristles. In lateral view the antennae are situated at about 5/7 the height of the compound eyes. Antennal segment 1 is from subequal to 1 1/2 times the length of segment 2; segment 3 is subequal in length to segments 1-2 (longer in one species); segments 1-2 are clothed with short sparse hairs; the style is slender or tapers from base to apex and is usually pointed at the apex. The posterior dorsocentral bristles extend to the transverse suture and usually there are some anterior ones. Their distribution is from British Columbia to North Dakota, southeast to Florida, west of this line in the Nearctic region, throughout the mainland of Mexico and in Baja California Sur. It does not occur west of the mountains in southern California, penetrates the mountains in central and northern California, and crosses to the west of the mountains in Oregon and Washington. The largest concentration of species is in Arizona, New Mexico, Colorado, and Texas and the mainland of Mexico (fig. 2). Most of the records of Mexican species were taken from Martin (1968a). Since figure 2 was prepared, specimens were collected in Baja California del Norte east of the mountains (see S. duncani Bromley).

Ospriocerus Loew has the hypopleura clothed with hairs or weak bristles. The second segment of the palpi is about two times as long as broad. The occipital bristles are strong and slightly curved forward. Posterior cell 1 is open and posterior cell 4 is usually closed and short petiolate. The gibbosity extends about 3/5 the distance from the oral margin to the antennae and the mystax is composed mainly of sparse bristles. In lateral view the antennae are situated at about 5/6 the height of the compound eyes. Antennal segment 1 is from two, to more than three, times the length of segment 2, segment 3 is two or more times the length of segments 1-2 and is with or without an apical style; the style when present is truncate at the apex, at times fluted apically, the apex concave from which a short bristle arises. Usually there are only two or three weak posterior dorsocentral bristles situated just anterior to the scutellum. Lateral bristles are usually found on tergite 2 and at times on 3. The distribution is similar to that of Scleropogon Loew except that it is not found east of the Mississippi River, is not found in California, Oregon, or Washington west of the mountains, and has not been reported from Baja California, but one would expect it to occur in Baja California Norte east of the mountains. It occurs slightly farther south in the mainland of

Mexico than does Scleropogon Loew. The main concentration of species is in Texas, Chihuahua, Sonora, and Coahuila (fig. 3). The records for Mexican species were taken from Martin (1968 b).

NOTES ON CHARACTERS

ANTENNAE. These are three-segmented with an apical two-segmented style in Stenopogon Loew and Scleropogon Loew. Segments 1 and 2 bear hairs or bristle-like hairs, those below (anteriorly) on segment 1 are usually long and numerous in Stenopogon, and short and sparse in Scleropogon. Segments 1 and 2 are short, segment 1 is narrower and longer than segment 2. Segment 3 is as long or longer than segments 1 and 2 together and on the anterior apical surface there is a depressed area which varies in length and is called the sensory area; Martin (1970) refers to them as excisions as they frequently collapse on drying and in some cases distort the form of the segment. The style is quite slender and narrows apically and terminates in a short rounded apical spine; the basal segment is short and at times not visible. The measurements in the text refer to segments 1, 2, 3, the two-segmented style, and the sensory area.

MALE GENITALIA. These are nonrotate, with the upper forceps (epandria) always dorsal in position; they are broad basally and are rounded or narrow to a point apically. The proctiger extends out and frequently up from the middle of the upper forceps and is as long or longer than the upper forceps; in some cases it extends well beyond (fig. 43). Sternite 9 or the hypandrium is of several forms; it is undivided in Stenopogon inquinatus Loew (fig. 98); in most species it is divided into apical (fig. 42) or lateral arms (fig. 174) which vary in length and width and also in the amount, length, and color of the hairs; in the Albibasis group these are minute apical swellings (fig. 10); and in Scleropogon Loew (fig. 206) they are more or less fish-tail shaped. The lower forceps (gonopods) are complex structures usually hidden between the upper forceps and the hypandrium and only their general shape is shown in the figures in order to show their length in relation to the other parts.

HYPOPLEURA. This term was proposed by Osten Sacken (1884). Crampton (1942) has shown that this is a compound area and includes the mesothoracic meropleurite and the metathoracic episternum and epimeron. Coquillett (1904b) was the first to use hypopleura for the area anterior to and slightly above the halteres in the Asilidae when he discovered that Stenopogon sabaudus (Fabricius) (type-species of Stenopogon Loew) had the hypopleura bare of hairs, while Scleropogon picticornis Loew (type-species of Scleropogon Loew) had it nearly covered with hairs and bristles. Back (1909, plate 2, fig. 2) used the term for this area and it has been used by a number of authors of the Asilidae since then. Bromley (1931) in his first key to Stenopogon used katapleurotergite ("hypopleura") but in his second key, Bromley (1937), used "hypopleura" only.

The term metapleura was used for this area by Hull (1962); this term is objected to as it indicates that the area is on the metathorax rather than on the mesothorax. The term postscutellum is preferred over metanotum for the same reason. Martin (1970) proposed the term metepimeron for the location of these hairs and bristles; this is definitely an area of the metathorax and not of the mesothorax and has no hairs or bristles in these genera.

The morphologists have other terms for this area: "pleurotergite" (Young 1921, Crampton 1942), laterotergite (Bonhag 1949), or "laterotergite of postnotum" (Bonhag in Cole and Pritchard, 1965, fig. 1). Laterotergite would be the preferred term of these as it is part of the postnotum (postscutellum) and not a pleural area even though it is found on the sides of the mesothorax. The term hypopleura is used here, a change now after many years of use would only tend to confusion, but it should be understood that it does not refer to any of the areas for which it was proposed by Osten Sacken (1884).

PREY AND BIOLOGY

The literature on the prey and preying habits of the Asilidae was summarized by Linsley (1960) and original observations made on a number of genera and species in Arizona. Cole (1958) compiled records of the prey of several species of Stenopogon Loew, most of which were honey bees but the records were from in or near cultivated areas. Powell and Stage (1962) reviewed and summarized the prey records for Stenopogon Loew including several species now placed in Scleropogon Loew and Ospriocerus Loew. They also studied the habits and prey habits of Stenopogon engelhardti Bromley in the White Mountains of southeastern Mono County, California, and collected 186 specimens with prey. Forty species of insects were involved, varying from 2.8 to 25 mm. in length; however, more than half of the prey represented a species of tipulid fly nearly as large as the predator. All the prey were taken in flight. One interesting observation was that eight females were found preying on their own kind, seven of which were males. No honey bees were taken as prey in this a natural habitat.

Lavigne (1963) reported on the preying, mating, and other habits of Stenopogon (Scleropogon) coyote Bromley in Wyoming. Most of the prey were grasshoppers caught in flight but he also observed the predators attacking grasshoppers on the ground when they were moving but not when at rest. He also observed these flies laying eggs; the female would bury her abdomen 9 to 10 mm. in the sandy soil where the eggs were laid in clusters; an excellent photograph of 12 eggs in a cluster was included.

Lavigne and Holland (1969) give data on the habits and habitat of Stenopogon (Scleropogon) picticornis Loew and photographs of the adults at rest, mating, and ovipositing. Several species of grasshoppers and one species of tiger

beetle were taken as prey. Most of the grasshoppers were captured on the ground when crawling and when they approached to within 12 to 14 inches of the asilid. These authors described oviposition in the ground as well as the eggs and they made a recording of the sound of flight.

ACKNOWLEDGMENTS

The following institutions and persons have kindly loaned or donated specimens, or helped in other ways, for which I am grateful.

American Museum of Natural History, P. W. Wygodzinsky . .AMNH
Arizona State University, Mont A. Cazier . . . . . ASU
California Academy of Sciences, Paul H. Arnaud, Jr. . . . CAS
California Department of Agriculture, M. S. Wasbauer . . CDA
California Insect Survey, University of California, Berkeley, Frank R. Cole, Jerry A. Powell . . . . . CIS
Charles H. Martin, Oregon State University . . . . . CHM
California State College, Long Beach, E. L. Sleeper . . CSCLB
Cornell University, L. L. Pechuman . . . . . CU
Carl W. Kirkwood, Summerland, California . . . . . CWK
Eric Fisher, California State College, Long Beach . . . . EF
Florida State Collection of Arthropods, Howard V. Weems, Jr. . . . . .FSCA
J. R. Birchim, Independence, California . . . . . JRB
Los Angeles County Museum, Lloyd M. Martin . . . . . .LACM
Museum of Comparative Zoology, H. E. Evans . . . . . MCZ
Marshall W. Stone, Riverside, California . . . . . MWS
Ohio State University, Charles A. Triplehorn . . . . . OSU
R. H. Painter, Manhattan, Kansas, Elizabeth M. Painter . . . . . RHP
San Diego Natural History Museum, Charles F. Harbison . SDNHM
Southern Illinois University, John C. Downey . . . . . SIU
University of California, Davis, A. T. McClay, R. O. Schuster . . . . . UCD
University of California, Riverside, Saul Frommer, E. I. Schlinger, P. H. Timberlake . . . . . UCR
University of Idaho, William F. Barr . . . . . UI
University of Kansas, R. H. Beamer . . . . . UK
United State National Museum, U.S.D.A., Systematic Entomology Laboratory, Willis W. Wirth, Lloyd V. Knudson . . . . . .USNM
Utah State University, Wilford J. Hanson . . . . . USU
Washington State University, Ralph Dawson . . . . . WSU
Yale University, Charles L. Remington . . . . . YU

I also want to thank Norton S. Wilson and Marshall W. Stone, U.S.D.A., Agricultural Research Service, Entomology Research Division, Riverside, California for photographing the figures.

Key To The Genera

1. Hypopleura ("metapleura," "katapleurotergite," "metepimeral") bare of hairs . . . . . Stenopogon Loew
   Hypopleura with hairs or bristles, or both 2

2. Antennal segment 1 subequal in length to 2, at most 1 1/2 times the length of 2, segment 3 usually subequal in length to 1-2, at most 1 3/4 times the length of 1-2, slender terminal style always present and more or less pointed at apex with a short apical spine; two or more anterior dorsocentral bristles present; posterior cells 1 and 4 of the wings open, or closed and petiolate; abdominal tergites 1-3 or more usually with strong lateral bristles . . . . . Scleropogon Loew
   Antennal segment 1, two or more times length of 2, segment 3, two or more times the length of 1-2, with or without a terminal style, style when present truncate at apex with a short spine arising from an apical pit; no anterior dorsocentral bristles; posterior cell 1 of the wings open, posterior cell 4 usually closed and short petiolate; abdominal tergite 1 with strong lateral bristles, weaker or absent on 2 and 3 . . . . . Ospriocerus Loew

GENUS STENOPOGON Loew

Stenopogon Loew, 1847, Linnaea Ent., vol. 2, p. 453 (as subgenus of Dasypogon Meigen). Type-species: Asilus sabaudus Fabricius (Coquillett, 1904b, p. 179).

Gonioscelis Schiner, 1866, K. -k. Zool.-Bot. Gesell. Wien, Verhandl., vol. 16 (Abhandl.), p. 670. Type-species, Dasypogon hispidus Wiedemann (orig. des.). Martin and Wilcox, 1965: p. 383 give this synonymy but it is treated as a separate genus by Hull, 1962: p. 131; differing mainly by the strong basal swelling on the fore femora and its restriction to the Ethiopian region.

Stenopogon Back, 1909, Trans. Amer. Entomological Soc., vol. 35, p. 189. Description includes Scleropogon Loew as a synonymn and also several species now placed in Ospriocerus Loew.

Stenopogon Hull, 1962, U.S.N.M. Bull. No. 244 (part 1), p. 122, figs. 126, 447, 449, 894, 901, 903, 910, 1775, 1817, 1938. Description, list of world species, figures of antennae, wings, head, male and female genitalia, mostly of Palearctic species. The list of Nearctic species includes several species now included in Scleropogon Loew and Ospriocerus Loew.

The absence of hairs or bristles on the hypopleura is a rare character in the Asilidae and is important enough to

separate Stenopogon Loew from Scleropogon Loew and Osprio-cerus Loew. The distribution of the species in North America is unique with the concentration of more than 90 percent of the species in California mainly on the coastal side of the mountains. About a dozen species extend out of California to the north and east and about the same number south in Baja California del Norte.

Scleropogon Loew and Osprio cerus Loew are only found east of the mountains in southern California and only Scleropogon Loew penetrates the mountains in the northern part of California. They are most numerous in the southwestern part of the United States and on the mainland of Mexico and are scarse or absent in Baja California. Stenopogon boharti Bromley is the only species reported from the mainland of Mexico or from Baja California Sur.

The species are varied and have been divided into groups that are described, keyed, and illustrated in the following sections.

GROUPS OF STENOPOGON Loew

The genus has been divided into groups as an aid to their identification. Several of these groups are natural divisions and are separated by quite consistent characters. They are the Albibasis, Boharti, Breviusculus, and Inquinatus groups. The remaining groups are separated by characters which are more or less artificial.

The Jubatus group contains those species which have the mystax all or in part black. Two of the species placed here, S. stonei Bromley and S. neojubatus Wilcox and Martin, based on the form of the male genitalia, might be better placed in the Obscuriventris group.

The Californiae group contains those species which have the abdomen largely or in part red in ground color and with at least the middle femora reddish posteriorly.

The Wilcoxi group contains those species which have the abdomen black in ground color and with at least the middle femora reddish posteriorly.

The Rufibarbis group contains those species which have the femora black except at the apex, the fore and middle tibiae all reddish, and the arms of the hypandrium directed laterally. Stenopogon rufibarboides Bromley, except for its red mystax, might better be placed in the Jubatus group and S. diablae Wilcox, new species, might be a light haired variation of S. jubatoides Bromley.

The Obscuriventris group contains those species which have the femora black except at the apex, all of the tibiae at least with the tips black, and with the short arms of the hypandrium directed caudad.

It seems quite possible that when more material is collected some of the species based on the color of the hairs or the integument may prove to be variations or subspecies of some of the previously described species. Stenopogon inquinatus Loew is the outstanding example of the color variation within a species. Bromley (1931, 1937) when he

made S. morosus Loew and S. modestus Loew synonymns of S. inquinatus Loew, gave us a species in which the integument varied from black to red, the hairs and bristles from white to reddish brown, and the wings all hyaline to brown and at times all or largely milky white.

Key to the Groups of Stenopogon Loew

1. Fore coxae with numerous strong bristles; gibbosity extending from 1/2 to 3/4 the distance from the oral margin to the antennae . . . 2
   Fore coxae with numerous long hairs; gibbosity extends from 5/6 to 7/8 the distance from the oral margin to the antennae 5

2. Gibbosity weak and extends about 1/2 the distance from the oral margin to the antennae 3
   Gibbosity strong and extends about 3/4 the distance from the oral margin to the antennae . . . 4

3. Abdominal tergites 1-3 with lateral bristles; antennal segment 3 one and one-half times as long as segments 1-2; posterior cell 4 of wings usually closed; hind metatarsi as long as segments 2-4 . . . . . BOHARTI Group
   Abdominal tergite 1 with lateral bristles; antennal segment 3 subequal in length to segments 1-2; posterior cell 4 usually open; hind metatarsi as long as segments 2-3. ALBIBASIS Group

4. Anterior mesonotal hairs shorter than antennal segment 2; face below antennae with a bare inverted V extending on the gibbosity; male hypandrium undivided apically . . . . .INQUINATUS Group
   Anterior mesonotal hairs subequal in length to antennal segment 1; face and gibbosity pollinose; male hypandrium divided apically . . . . . BREVIUSCULUS Group

5. Mystax all or partly black; anterior mesonotal hairs usually as long as antennal segments 1-2 . . . . . JUBATUS Group
   Mystax all light colored, white, yellow, or reddish; anterior mesonotal hairs subequal in length to antennal segment 1 6

6. At least the middle femora reddish posteriorly or ventrally 7
   Femora black, reddish at most at the apex 8

7. Abdomen black; usually only the middle femora reddish posteriorly or ventrally . WILCOXI Group
   Dorsum of abdomen largely red, at times only basal tergites narrowly red at middle, sternites all or in part red; usually all the femora reddish posteriorly or ventrally or both . . . . . CALIFORNIAE Group

8. Fore and middle tibiae all reddish or yellowish; arms of the hypandrium project laterally . . . . . RUFIBARBIS Group
   All the tibiae with at least the tips black; arms of the hypandrium short and project apically . . . . . OBSCURIVENTRIS Group

NOTE. The keys to the species are prepared for the males with notes added in most cases for the females. Characters for the females are quite meagre and varied and their identification in most cases is best made by association with the males.

ALBIBASIS GROUP

Smaller flies ranging from 9 to 15 mm. in length. Face narrow, at the antennae about 1/4 the width of one eye; slightly swollen on the lower half, mystax composed of sparse bristles and confined to this area. Occipital bristles strong and slightly curved forward. Antennal hairs short and sparse, segment 3 subequal in length to segments 1-2 with the sensory area poorly defined. Lateral mesonotal bristles sparse, two to three each of the presutural, supraalar, and postalar. Wings short, extending at most to the apex of abdominal segment 5; hyaline or lightly infuscated, some of the males with the basal part milky white. Coxal bristles strong and numerous. Male hypandrium small, undivided apically, with two small swellings or tubercles apically in several species.

Martin (1970) refers to this as the Nigritulus group but I believe it is customary to use the name of the first described species.

Key To The Species Of The Albibasis Group

1. Anterior mesonotal hairs erect and as long or longer than antennal segment 2; wings hyaline 2
   Anterior mesonotal hairs much shorter than antennal segment 2; wings hyaline or lightly infuscated 3

2. Femora yellowish, anterior side with small brown spot and posterior side of hind femora with brown spot; pleura and coxae black in ground color; usually one anterior dorsocentral

and eight scutellar bristles; posterior cell 4 broadly open, anterior crossvein at, male 10/25, female 12/28 length of discal cell; female abdominal segments 1-7 gray pollinose; length 10-13 mm. (California). . . . . S. adelantae Wilcox, new species

Femora yellowish red, anterior side brown; abdomen, pleura, and coxae yellowish in ground color; usually three or four anterior dorsocentral and eight to ten scutellar bristles; posterior cell 4 narrowly open, anterior crossvein at, male 9/22, female 9/23 length of discal cell; female abdomen gray pollinose, sides of tergites 7 and base of sternites bare of pollen; length 10-14 mm. (California) . . . . . S. lomae Wilcox, new species

3. Hind femora largely black, fore and middle femora usually black except at base and apex 4

At most anterior side of femora black 6

4. Male hairs and bristles black or brown and wings white basally; female hairs and bristles white and wings hyaline; antennae black, female segment 1 reddish at times; female tibiae and tarsi all reddish; tergites 1-6 and sternites 1-5 gray pollinose; anterior crossvein at, male 16/31, female 20/35 length of discal cell; length 10-15 mm. (California). . . . S. bartonae Wilcox, new species

Mystax white and wings hyaline in both sexes 5

5. Dorsocentrals, usually the lateral mesonotals and the bristles on the hind tibiae and tarsi, brown or black; anterior crossvein at, male 14/30, female 16/37 length of discal cell; fore and middle tibiae brown or black except at base; abdomen thinly grayish pollinose appearing black from dorsal view, female segments 7-8 bare, male upper forceps reddish, lower forceps and hypandrium black; length 10-14 mm. (California). . . S. figueroae Wilcox, new species

Mesonotal and bristles on the hind tibiae and tarsi white; anterior crossvein at, male 17/26, female 16/30 length of discal cell; fore and middle tibiae reddish; abdomen densely gray pollinose, female segments 7-8 bare, male genitalia reddish; length 9-14 mm. (Arizona, California, Baja California Norte) . . . . . S. arnaudi Martin

6. Abdomen, mesonotum and pleura largely yellowish in ground color; wings very lightly

infuscated, male white basally, anterior crossvein at, male 16/34, female 20/39 length of discal cell; five to seven scutellar bristles; femora yellowish red, light brown anteriorly at times; length 12-15 mm. (California, Nevada) . . . . . S. albibasis Bigot

Abdomen brown basally, mesonotum and pleura largely black in ground color 7

7. Coxae yellowish in ground color; femora all yellow at most with anterior brown spots; humeri black; wings hyaline, anterior crossvein at, male 10/21, female 12/25 length of discal cell; four to six scutellar bristles; abdomen yellowish to brown with apical segments yellowish red, female segments 1-6 gray pollinose, sternite 6 with narrow bare streak; length 9-10 mm. (Arizona, California, Nevada, Utah) . . . . . S. utahensis Bromley

At least middle and hind coxae largely black; femora reddish, anterior side black or brown 8

8. Humeri yellowish; wings lightly infuscated, white basally in male, anterior crossvein at, male 14/27, female 15/29 length of discal cell; usually four scutellar bristles; abdomen light brown, darker apically in female, female segments 1-6 gray pollinose, sternite 6 with central bare streak; length 11-14 mm. (California). . . . . S. ozenae Wilcox, new species

Humeri black; coxae usually all black; wings of both sexes hyaline, anterior crossvein at, male 14/29, female 14/30 length of discal cell; abdomen brown becoming reddish apically, female tergites 1-5 and side of 6 gray pollinose, sternites 1-5 gray pollinose, 5 with central bare streak; length 11-13 mm. (California). . . . . S. nigritulus Coquillett

Stenopogon adelantae Wilcox, new species.
(Figures 4-7.)

MALE. Length 10 mm. Head black; face and occiput white, face with yellowish tinge, frons grayish pollinose with yellowish tinge. Hairs and bristles white. Antennal segments 1-2 yellowish; 3 and style black; hairs yellowish white; segments 18-10-32-12, sensory area 11, in length (fig. 4).

Mesonotum black; densely gray pollinose, narrow median and dorsocentral stripes appear brown at some angles, central

anterior portion yellowish brown. Hairs yellowish white and as long as antennae 2, in anterior dorsocentral rows longer. Bristles yellowish white; 5 short humeral; 1-2 posthumeral; 3 presutural; 4 supraalar; 5 postalar; 4-5 posterior and 1 anterior dorsocentral. Pleura and coxae black; densely gray pollinose, mesopleura with bronze tinge; hairs and bristles white. Scutellum black; densely gray pollinose; 6 white marginal bristles.

Abdomen black becoming brownish apically; densely grayish white pollinose. Sparse hairs white, longer laterally on 1-3; 8 slender white lateral bristles on 1. Sternites black, posterior margins reddish; densely gray pollinose; short hairs white. Genitalia yellowish red; hairs yellowish (figs. 5, 6, 7).

Legs yellowish red; fore and middle with brown spots on anterior side basally, hind femora with larger spot on anterior side with base and apex reddish; apical 2/3 of hind tibiae brown. Hairs white; bristles yellowish white; claws black, basal 1/2 reddish; pulvilli light brown; empodia reddish.

Halteres brownish. Wings hyaline; veins reddish brown; anterior crossvein at 10/25 length of discal cell; posterior cells 1 and 4 open about two times length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 11mm. Mesonotum grayish brown pollinose. Tergites 1-7 grayish golden pollinose, thin on 7, lateral and posterior margins of 7 and all of 8 bare; 8 and apical spines reddish brown. Anterior crossvein at 13/28 length of discal cell.

HOLOTYPE. Male, 11 miles S. of Adelanto, California, 25 May 1957 (J. Wilcox) CAS.

ALLOTYPE. Female, same data, 18 May 1957, CAS.

PARATYPES. CALIFORNIA: Los Angeles County: male, 5 miles S. of Lancaster, 15 May 1956 (E. G. Linsley, J. W. MacSwain) CIS; 4 males, 7 females, Littlerock, 15 May 1953, 22 May 1942 (Guy F. Toland, J. Wilcox) JW; male, female, (Mojave Desert), 20 May 1937 (E. P. Van Duzee) CAS; male, Llano, 5 May 1949 (A. L. Melander) USNM; 1 male, 2 females, 30 May 1958, 1 June 1957 (W. E. Simonds) CDA; 4 males, 10 females, Palmdale, 4 May 1957, 23 May 1942, 29 May 1948, 10 June 1949 (Guy F. Toland, J. Wilcox) JW; 1 female, 6 May 1949 (A. L. Melander) USNM; 1 female, 17 May 1937 (E. P. Van Duzee) CAS. Riverside County: 1 male, top Berdoo Canyon, 15 June 1963 (E. I. Schlinger) UCR. San Bernardino County: 15 males, 19 females, 11 miles S. of Adelanto, 18, 25 May 1957 (Itol J. and J. Wilcox) JW; 1 female, 1 mile S., 1 June 1962 (M. E. Irwin) UCD; 1 female, 5 miles N., 30 May 1948 (J. Wilcox)JW; 1 male, 2 females, Apple Valley, 9 May 1958 (P. D. Hurd)CIS; 1 male, 2 females, near Anastre Canyon, 20 May 1941 (P. H. Timberlake) UCR; 2 males, 2 females, Cajon Junction and 4 miles N., 2 miles E. Cajon Pass, 7 June, 1 July 1958 (J. C. Hall, E. I. Schlinger) UCD; 1 male, 1 female, Deep Creek, 16 May 1957 (P. H. Timberlake) UCR; 1 male, Hesperia, 16 May 1937 (P. H. Timberlake) UCR; 1 male, 4 miles E. of Mojave River, 16 May 1957 (P. H. Timberlake) UCR; 1 female, 7 miles SE., 6 June 1964 (M. J. Wargo) UCR; 6 males, 12 females, 2

miles W. of Phelan, 22 May 1957, 7 June 1958 (J. C. Hall, E. I. Schlinger) UCD; 1 male, 1 female, near Sheep Creek Canyon, 24 May 1945, 29 June 1948 (A. L. Melander) USNM. Santa Barbara County: 1 male, Cuyama Ranch, 25 July 1935 (Jean Russell) USNM; 1 female, 5 miles N. of Lompoc, 11 August 1962 (E. I. Schlinger) UCR. Ventura County: 25 males, 23 females, Camp Ozena, upper Cuyama, 3 to 27 June 1967, 14 to 28 June 1963, 5 July 1964 (Carl W. Kirkwood) EF, JW.

Stenopogon albibasis Bigot.
(Figures 8-11.)

Stenopogon albibasis Bigot, 1878, Soc. Ent. de France, Ann., vol. 8, p. 422. Type male, California, Hope Museum, Oxford?
Stenopogon albibasis Back, 1909, Amer. Entomol. Soc. Trans., vol. 35, p. 197. Translates original description and identifies specimens from Los Angeles County, California (Coquillett).

MALE. Length 12 mm. Head black; face and occiput white, frons deep golden pollinose. Hairs and bristles white. Antennal segments 1-2 yellowish, 3 and style black; hairs white; segments 18-11-41-15, sensory area 15, in length (fig. 8).

Mesonotum yellowish red, narrowly bisected central stripe and intermediate spots black; densely yellowish gray pollinose obscuring the ground color, central and intermediate spots brown pollinose. Hairs short sparse white. Bristles yellowish white; 5 short humeral; 1 posthumeral; 3 presutural; 3 supraalar; 4 postalar; 5 posterior; and 1 anterior dorsocentral. Pleura and coxae yellow with black spots below on sternopleura and epimeron; densely golden gray pollinose; hairs and bristles white. Scutellum yellowish; golden pollinose; 4 white marginal bristles.

Abdomen yellowish, white pollinose but at most angles appearing bare of pollen on dorsum. Hairs white, longer on 1-2; 7 white lateral bristles on 1. Sternites yellow; thinly white pollinose; hairs short, white. Genitalia yellowish; hairs white (figs. 9, 10, 11).

Legs yellow; middle and fore femora brownish basally on the anterior side. Hairs and bristles white; claws black, base reddish; pulvilli yellowish; empodia reddish.

Halteres light brown, stem yellowish. Wings slightly brownish apically; basal, anal, and axillary cells and axillary lobe white. Veins light brown; anterior crossvein at 16/37 length of discal cell; posterior cells 1 and 4 open about two times length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 13 mm. Occipital bristles yellowish; hairs on ocellar tubercle brownish, on frons and antennae yellowish. Five scutellar bristles. Tergites 1-6 of abdomen grayish pollinose, sides of 6 and 7-8 bare; apical spines reddish brown. Hind femora brownish anteriorly but not as dark as middle and fore ones; apical 1/2 of hind

tibiae and tarsi brownish. Wings hyaline.

DISTRIBUTION. California; Alameda, Amador, Contra Costa, Lake, Lassen, Mariposa, Mendocino, Modoc, Sacramento, Sierra, Siskiyou, Trinity, and Tuolumne counties; July to September. Nevada: Douglas County: 3 miles S. of Genoa, 10 July 1957, 12 July 1968, 23 August 1955 (R. M. Bohart, D. S. Horning, Jr., R. H. James) UCD; Minden, 24 August 1952 (R. M. Bohart) UCD; Washoe County: Reno, 20 July 1940 (LaR) USNM; Verdi, 4 August 1968 (M. R. Gardner) UCD.

Stenopogon arnaudi Martin.

Stenopogon arnaudi Martin, 1968a, Proc. Calif. Acad. Sci., vol. 35, p. 375, figs. 13, 22. Types male and female, Rancho Viejo, elevation 7000 feet, 14 June 1953, a second label, Mexico, Baja California, Sierra San Pedro Martir (Paul Arnaud, Jr.) (CAS). Paratypes, 9 males and 3 females with the same data.

This species was previously identified as S. nigritulus Coquillett. After examining the type of S. nigritulus, the main difference appears to be the color of the legs. Stenopogon nigritulus has the posterior side of all the femora reddish, while S. arnaudi has a complete band on all the femora; on the fore and middle femora the black occupies the middle 2/3 on the dorsal and anterior surfaces and the middle 1/3 on the posterior and ventral surfaces, with the base and apex reddish; on the hind femora the middle 3/4 of all surfaces are black with the base and apex reddish. This applies to 5 specimens from or near the type locality, the sixth has the black faint on the posterior side of the middle femora and the venter narrowly red.

Going north, the specimens vary as follows. Four specimens from Jacumba agree well with the Mexican specimens. At Oak Grove, 68 specimens agree with S. arnaudi, while 15 have the venter and posterior sides of the fore and middle femora reddish. At Pinyon Flat, 70 specimens agree with S. arnaudi and 21 have the fore and middle femora reddish as above. At Indio, 58 specimens agree with S. arnaudi and 39 have the fore and middle femora reddish as above and in this group most of the females agree with S. arnaudi and most of the males have the fore and middle femora reddish as above.

Specimens have been examined from the following localities:

MEXICO: Baja California del Norte: 48 miles S. E. of Ensenada, 12 June 1963 (E. L. Sleeper) CSCLB; 29 miles S. of La Rumorosa, 5500', 8 July 1967 (M. E. Irwin) UCR; 41 miles S., N. end Laguna Hanson, 5500', 8 July 1967 (M. E. Irwin) UCR; Sierra San Pedro Martir, 3 miles S. of Encinas, 3 June 1958 (J. Powell) CIS; La Grulla, 6900', 15 June 1953 (P. H. Arnaud, Jr.) CAS; trail La Grulla to La Encantada, 13 June 1953 (P. H. Arnaud, Jr.) CAS.

ARIZONA: Coconino County: Hyde Park, 4 June 1966 (J. H. and J. M. Davidson, M. A. Cazier) ASU. CALIFORNIA: Los

Angeles County: Buckhorn Flats, 20 August 1941 (J. Wilcox) JW. Riverside County: Drippings Springs, 12 June 1962 (J. Wilcox) JW; Idyllwild, San Jacinto Mountains, 28 July 1940 (L. J. McIntosh, J. Wilcox) JW; Indio, 4 April to 7 May 1941, 1942 (N. R. Anderson, A. F. Howland, Itol J., J. Jr., and J. Wilcox) JW; La Quinta, 22 April 1958 (J. C. Hall) UCD; 6 miles W. of Mecca, 22 April 1958 (J. C. Hall) UCD; San Jacinto Mountains, Fuller Mill Creek, 28 July 1965 (P. A. Rauch) UCR; Pinyon Flats, 30 May 1939 (B. Brookman), 21 May to 16 June 1941 to 1966 (A. F. Howland, M. W. Stone, Itol J. and J. Wilcox) JW; Temecula, Woodchuck Camp, 9 June 1964 (L. D. Anderson) UCR; Thousand Palms Canyon, 5 April 1966 (J. C. Hall) UCR; White Water, 13 May 1966 (J. Wilcox) JW. San Bernardino County: Big Bear Lake, Bear Valley and Hanna Flats, 27 June 1948, 30 July 1949 (Guy F. Toland, J. Wilcox) JW; March's Ranch Road, 2 miles E. of Baldwin Lake, 5-6000', 25 May 1966 (E. I. Schlinger) UCR; 3 miles E. of Yucca Valley, 25 May 1966 (J. Wilcox) JW. San Diego County: Anza State Park, 23 April 1931 (E. J. Taylor) UCD; Culp Canyon, 2 April 1962 (E. I. Schlinger) UCR; Jacumba, 13 April 1953 (J. Wilcox) JW; Oak Grove, 1 to 21 June 1941, 1962 (Guy F. Toland, J. Wilcox) JW; Scissors Crossing, Valle de San Felipe, 2240-2800', 4 May 1969 (E. I. Schlinger) UCR.

There are many more records from southern California but the specimens are not available at the present time. See the records and notes under S. nigritulus.

Stenopogon bartonae Wilcox, new species.
(Figures 12-15.)

MALE. Length 12 mm. Head black; face and occiput white, frons grayish golden pollinose. Hairs and bristles black, beard brown. Antennae black; hairs black; segments 15-10-35-14, sensory area 10, in length (fig. 12).

Mesonotum black; grayish golden pollinose, divided central stripe and intermediate area brown pollinose. Hairs very short black. Bristles black; 4 short humeral; 1 posthumeral; 2 presutural; 3 supraalar; 3 postalar; 4 posterior and 2 anterior dorsocentral. Pleura and coxae black; gray pollinose; bristles black; sternopleural hairs golden. Scutellum black; grayish brown pollinose; 6 black marginal bristles.

Abdomen black, posterior margin of tergites 2-4 reddish; gray pollinose. Hairs short brown, a few longer on 1-2; 5 lateral brown bristles on 1. Venter black, posterior margins reddish and apical segments brownish; gray pollinose; short hairs brown. Upper forceps reddish, lower forceps and hypandrium brown; hairs brown (figs. 13, 14, 15).

Legs brownish black; base and apex of femora, base of tibiae, and posterior sides of fore and middle tibiae reddish. Hairs and bristles black; claws black, base reddish; pulvilli brown; empodia reddish.

Halteres light brown, base darker. Wings grayish hyaline; basal, anal, and axillary cells and axillary lobe white. Veins brown; anterior crossvein at 17/35 length of

discal cell; posterior cell 1 open 1 1/2 times and 4 open two times the length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 14 mm. Hairs and bristles of head white, on frons and ocellar tubercle brownish; antennal segment 1 reddish, hairs yellowish. Mesonotal hairs yellowish; bristles yellowish white, 3 presutural and 1 anterior dorsocentral; coxal bristles white; 8 yellowish white scutellar bristles. Abdominal hairs and bristles yellowish white; tergites 1-6 gray pollinose, 7-8 bare; apical spines reddish brown. Legs yellowish red, femora except base and apex brownish black; hairs yellowish; bristles yellowish, light brown in part on hind legs. Wings lightly infuscated, base hyaline.

HOLOTYPE. Male, Barton Flats, 6300', San Bernardino County, California, 12 July 1947 (J. Wilcox) CAS.

ALLOTYPE. Female, same data, 7 July 1947, CAS.

PARATYPES. CALIFORNIA: San Bernardino County: (all from or near the Barton Flats area in the San Bernardino Mountains, elevation 6000' to 8000'). One female, up. Barton Creek, 9 August 1949 (A. L. Melander) USNM; 49 males, 56 females, Barton Flats and South Fork Forest Camp, 30 June to 2 August 1938 to 1965 (M. W. Stone, Guy F. Toland, Itol J. and J. Wilcox) JW; 1 male, Barton Flats, 8 August 1966 (Eric Fisher) EF; 1 female, 11 July 1956 (H. W. Michalk) CDA; 1 male, 2 females, 2, 7 September 1944, 1946 (Noel Crickmer, A. L. Melander) USNM; 2 males, 2 females, Camp Angelus, 8 August 1966 (Eric Fisher) EF; 5 males, 3 females, Dollar Lake trail, 10 July 1956 (J. L. Stage, C. L. Wiley) CIS; 4 males, 4 females, 11 July 1956 (R. M. Bohart) UCD; 1 male, 1 female, Falls Pub. Camp, 11 July 1956 (R. M. Bohart, H. R. Moffitt) UCD; 1 female (H. W. Michalk) CDA; 2 males, 2 females, Forest Home, 21 July, 23, 26 August 1944 (A. L. Melander) USNM; 1 female, Glen Martin, 16 July 1920, CIS; 1 female, Jenks Lake, 5 August 1965 (J. Wilcox) JW; 1 female, 13 August 1958 (A. L. Melander) USNM; 1 female, Kilpecker Creek, 5600', 11 July 1964 (P. A. Rauch) UCR; 1 female, Lost Creek, 27 July 1953 (A. L. Melander) USNM; 1 female, Mill Creek, 6000', 23 August 1958 (R. H. and E. M. Painter) RHP; 5 males, Mill Creek, 6000-6200', 6 to 14 July 1946 (P. H. Timberlake) UCR; 1 male, Mountain Home Canyon, 8 June 1924 (J. M. Aldrich) USNM; 2 females, 22 September 1923 (F. R. Cole) CIS; 2 males, 2 females, Poopout Hill, 5 August 1965 (J. Wilcox) JW; 12 males, 23 females, Upper Santa Ana River, 3 June to 18 August 1946 to 1960 (A. L. Melander, Grace H. and John L. Sperry) USNM; 6 females, opposite Fish Creek, 22 July to 13 August 1947 (A. L. Melander, Grace H. and John L. Sperry) USNM; 1 male, 1 female, South Fork, 16 July 1947, 2 September 1944 (A. L. Melander) USNM; 4 females, F. C., 15 June 1970 (J. Wilcox) JW; 1 male, Thousand Springs, 16 September 1946 (John L. Sperry) USNM.

Male specimens with black mystax that probably belong here but were not included in the type series were collected in the following localities: CALIFORNIA: Fresno County: Kings River Canyon, 5000', 5 July 1910 (E. C. Van Dyke) CAS. Inyo County: Lone Pine, 30 May 1948 (J. Wilcox) JW; 28 June 1959 (J. C. Downey) SIU; Whitney Portal, 6 August 1948 (P. D.

Hurd, J. W. MacSwain) CIS; Whitney Road, 12 June 1937 (E. C. Van Dyke) CAS. Kern County: Walker Pass, 23 August 1963 (J. Wilcox) JW. Riverside County: Riverside, 18 July 1946 (A. L. Melander) USNM. San Bernardino County: Big Bear Lake, S. side, 11 August 1968 (J. Wilcox) JW; Camp Baldy, 26 June 1956 (R. M. Bohart) UCD; Snow Crest Camp, 7 July 1952 (A. A. Grigarick) UCD. Tulare County: Kern Lake to Rock Creek, 6250-7000', 27 July to 1 August 1915, CU.

There are other specimens from the San Bernardino Mountains, San Bernardino County (Big Bear Lake, Barton Flat, upper Santa Ana River, etc.) and from the San Gabriel Mountains, Los Angeles County (Big Pines, Camp Baldy, near Wrightwood, etc.) that appear to belong to S. bartonae but the males have the hairs and bristles white or yellowish. There are also other specimens in these localities that are probably S. ozenae. The two are so similar except for the ground color of the abdomen and legs that none have been included in the paratype series.

Stenopogon figueroae Wilcox, new species.
(Figures 16-19.)

MALE. Length 11 mm. Head black; densely white pollinose, frons brownish. Hairs and bristles white; upper occipitals and hairs on frons and ocellar tubercle black. Antennal segment 1 reddish, 2 brown, 3 and style black; hairs brown; segments 16-10-33-13, sensory area 12, in length (fig. 16).

Mesonotum black; central and intermediate area brown, central line and dorsocentral stripes golden brown, lateral margins including humeri and postalar calli grayish pollinose. Hairs sparse, erect, black, about 1/2 the length of antennae 2. Bristles brown to black; 3-4 short humeral; 1 posthumeral; 2-3 presutural; 1-2 supraalar; 2 postalar; 4 posterior and 1 anterior dorsocentral. Pleura black below, reddish above; fore and middle coxae reddish with some black anteriorly, hind ones mostly black; densely grayish pollinose; coxal bristles and about 4 sternopleural hairs white. Scutellum black; grayish pollinose; 6 brownish white marginal bristles.

Abdomen brownish black; grayish white pollinose; in dorsal view tergites 2-7 appear brown with sides of 2-7, anterior margins of 2-5 and posterior margins of 2-4 pollinose. Hairs short, sparse, recumbent, white, a few longer on 1 and lateral anterior margin of 2; 6-7 white lateral bristles on 1. Sternites black; grayish pollinose, denser on 1 and posterior margins of 2-4; short sparse hairs whitish. Upper forceps and proctiger reddish, lower forceps and hypandrium brown; hairs yellowish, brown on tergite and sternite 8 and dorsally on upper forceps (figs. 17, 18, 19).

Legs brownish black; broad base and apex, and venter posteriorly of fore, narrow base and apex of middle and hind femora reddish; narrow base of all tibiae and fore tarsi reddish. Hairs and bristles white; on the hind legs the bristles

are brownish black. Claws black, base reddish; pulvilli brown; empodia reddish.

Halteres yellowish white, lower stem brown. Wings hyaline; veins black; anterior crossvein at 14/30 length of discal cell; posterior cells 1 and 4 open about two times the length of anterior crossvein; anal cell open.

FEMALE. Length 13 mm. Postalar and 1 posterior dorsocentral bristle yellowish; 4 scutellar bristles whitish. Abdominal tergites 7-8 and sternites 5-6 with a central stripe bare of pollen; apical spines reddish. Middle femora with more red at base and apex, fore and middle tarsi reddish; bristles on hind femora and in part on hind tibiae white. Anterior crossvein at 16/37 length of discal cell.

HOLOTYPE. Male, Figueroa Mountain, Santa Barbara County, California, 26 August 1967 (Carl W. Kirkwood) CAS.

ALLOTYPE. Female, same data, CAS.

PARATYPES. 51 males, 32 females, same locality and collector, 5-6 July 1966, 6-7 July 1965, 26-27 August 1967, JW; 2 males, same locality, 3 July 1959 (P. M. Marsh) UCD. CALIFORNIA: Santa Barbara County: 1 male, Bluff Camp, San Rafael Mountains, 29 June 1959 (R. M. Bohart) UCD; 1 male, Goleta, 1 July 1959 (J. L. Bath) UCR.

Stenopogon lomae Wilcox, new species.
(Figures 20-23.)

MALE. Length 11 mm. Head black; face yellowish white, frons golden and occiput white pollinose. Hairs white, on frons and ocellar tubercle brownish; upper occipitals yellowish. Antennal segment 1-2 yellowish, 3 and style black; hairs yellowish; segments 17-11-32-12, sensory area 15, in length (fig. 20).

Mesonotum black; humeri, lateral margins, and postalar calli reddish; yellowish gray pollinose, divided central stripe and intermediate area brownish. Anterior hairs numerous, golden, and as long as antennae 2, longer yellowish posteriorly. Bristles yellowish; 3-4 short humeral; 1 posthumeral; 3-4 presutural; 4 supraalar; 4 postalar; 4 posterior and 4 anterior dorsocentral. Pleura and coxae yellowish, a black spot below on sternopleura; grayish golden pollinose; hairs and bristles white. Scutellum yellowish; golden pollinose; 7 whitish marginal bristles.

Abdomen yellowish, densely golden pollinose. Hairs white, longer on sides of 1-3; 6-7 weak white lateral bristles on 1. Sternites yellowish; golden pollinose; hairs white. Genitalia yellowish; hairs yellowish (figs. 21, 22, 23).

Legs yellowish red; anterior side of all femora and hind tibae largely brown. Hairs and bristles white; claws black, base reddish; pulvilli light brown; empodia reddish.

Halteres pale brown, base darker. Wings lightly tinged with brown; veins brown; anterior crossvein at 9/22 length of discal cell; posterior cell 1 open slightly more than and 4 open subequal to length of anterior crossvein; anal cell

open.

FEMALE. Length 12 mm. Abdomen brown; segments 1-7 pollinose, 7 thinly and posterior margin and 8 bare; apical spines brown. Anterior crossvein at 11/26 length of discal cell; posterior cell 4 open 1 1/2 times length of anterior crossvein.

HOLOTYPE. Male, Riverside, California, 15 June 1941 (J. Wilcox, Jr.) CAS.

ALLOTYPE. Female, same data, 8 June 1941 (J. Wilcox) CAS.

PARATYPES. CALIFORNIA: Los Angeles County: 3 males, 1 female (Coquillett) one labelled May, USNM; 1 female, Altadena, 22 July 1945 (K. W. Cooper) UCD; 1 female, Azusa, 13 July 1925, USNM; 2 females, 28 July 1962, EF; 1 male, 3 females, Claremont, 22 June 1941 (Guy F. Toland, Itol J. and J. Wilcox) JW; 2 males, Duarte, 20 July 1941 (J. Wilcox) JW; 1 male, 4 females, Irwindale, San Gabriel R., 4 July 1963 (R. R. Snelling) EF; 1 female, La Canada, 1200', 21 July 1909 (F. Grinnell, Jr.) USNM; 4 females, La Crescenta, 13 July 1939 (R. M. and G. E. Bohart) UCD; 1 female, Pasadena, 15 August 1906 (F. Grinnell, Jr.) USNM; Santa Monica Mountains, 1 female, Beverley Glen Canyon, 23 June 1962, 6 males, 3 females, Sepulveda Canyon, 17 June, 1 September 1962 (Eric Fisher) EF. Orange County: 1 female, Silverado Canyon, 23 July 1941 (J. Wilcox) JW. Riverside County: 1 female, Banning, 12 July 1952 (H. L. Mathis) UCD; 1 male, 2 females, 3, 4, and 8 miles W of Beaumont, 5, 19, 24 July 1957 (J. C. Hall, H. R. Moffitt) UCD; 5 males, 8 females, Cabazon, 19 June 1949 (Guy F. Toland, J. Wilcox) JW; 1 female, Idyllwild, San Jacinto Mountains, 17 June 1940 (C. V. Stahl) CAS; 2 females, La Quinta, 15 July 1920 (F. R. Cole) CIS; 3 males, 2 females, Mira Loma, 15, 17 June 1941 (A. F. Howland, John, J. Jr. and J. Wilcox) JW; 2 males, 6 females, Perris, 3 May 1953, 1 to 15 June 1941 (John and J. Wilcox) JW; Riverside, 15 males, 15 females, 30 May to 22 June 1941 (A. F. Howland, Thelma and Guy F. Toland, J. Jr. and J. Wilcox) JW; 2 males, 2 females, 1, 8, 27 June 1954 to 1957, 3 July 1959 (J.C. Hall, P. M. Marsh) UCD; 13 males, 2 females (A. R. Hardy) JW; 20 males, 30 June to 15 August 1969 (J. C. Hall) malaise, UCR; 1 male, San Jacinto Mountains, 20 July (D. J. Hall) JW; 1 male, The Gavilan, 23 May 1948 (J. Wilcox) JW; 1 male, 1 female, White Water, 2 May 1945 (J. Wilcox) JW; 1 female, Canyon, 19 May 1951 (R. C. Bechtel) UCD; 2 males, 1 female, 7 June 1963 (E. I. Schlinger) UCR. San Bernardino County: 3 males, Lytle Creek Wash, 22 June 1941 (Guy F. Toland, John and J. Wilcox) JW; 1 female, Mill Creek, 10 July 1922 (F. R. Cole) CIS; 1 male, Oak Glen, 10 June 1958 (H. R. Moffitt) UCD; 1 male, 1 female, Wildwood Canyon, 5 miles E. of Calimesa, 28 July, 10 August 1965 (M. E. Irwin, E. I. Schlinger) UCR.

The type locality is about four miles west and one mile north of Riverside on the east slope of the Jurupa Mountains. The other specimens labelled Riverside were collected on the UCR campus.

Stenopogon nigritulus Coquillett.
(Figures 24-27.)

Stenopogon nigritulus Coquillett, 1904b, Proc. Entomol. Soc. Wash. vol. 6, p. 179. Types male and female, Los Angeles County, California, July, Collection Coquillett, USNM. (See data below.)

Stenopogon nigritulus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 197. Description and identifies specimens from "S. B. Mountains", California, July 28 (W. M. Wheeler).

MALE. Length 11 mm. Head black, lower sides of face shining brown; face white, frons and occiput gray pollinose. Hairs and bristles white; five weak bristles on each side of frons and four to five on ocellar tubercle yellowish. Antennal segments 1-2 yellowish red, 3 and style brown; short sparse hairs yellowish; segments 15-9-33-12, sensory area 10, in length (fig. 24).

Mesonotum black; densely gray pollinose; broad divided central stripe brown, intermediate spots faintly light brown. Hairs yellowish, semierect and less than half the length of antennae 2. Bristles yellowish white; 2 short humeral, 1 posthumeral, 2 presutural, 2 supraalar, 2-3 postalar, 4 posterior and 1 anterior dorsocentral (large pin in center of thorax may have removed some bristles but there is no evidence of this). Pleura and coxae black, narrow apex of hind coxae reddish; densely gray pollinose; hairs and bristles white. Scutellum black; densely gray pollinose; 4 white marginal bristles.

Abdominal tergites black, 6 reddish brown and 7-8 reddish; densely gray pollinose, thin on dorsum of 6-7, 8 bare. Hairs yellowish white, short, recumbent, longer erect on sides of 1-2; 4-5 weak yellowish lateral bristles on 1. Sternites black, 7-8 reddish; densely gray pollinose; hairs short, sparse, semierect, yellowish. Genitalia yellowish red; short hairs yellowish (figs. 25-27).

Legs yellowish red; anterior side of fore femora brown with about the basal 1/6 and apical 1/3 reddish, the brown extending slightly on dorsum; middle femora similar but brown, not extending on dorsum; hind femora similar with about the basal and apical 1/5 of anterior side reddish, the brown extending on dorsum for its full length and on the venter for about 2/3 its length, a faint small elongate brown spot on posterior side just beyond the middle; apical 2/3 of hind tibiae on anterior side and hind tarsi brownish. Hairs and bristles yellow; claws black, base reddish; pulvilli yellowish.

Halteres yellowish. Wings hyaline; veins brown, at immediate base yellowish; anterior crossvein at 14/29 length of discal cell; posterior cell 1 open about two times, posterior cell 4 slightly more than, and anal cell slightly less than length of anterior crossvein.

TYPE. Male, Los Angeles County, California, July. Collection Coquillett. Type no. 7949 USNM.

I am indebted to Dr. Lloyd Knudson, Systematic Entomology

Laboratory, Entomology Research Division, USDA, for arranging for the loan of this and other specimens from the USNM.

FEMALE. Length 11 mm. Face and occiput white, frons gray pollinose. Antennal segments 17-10-31-14, sensory area 10, in length. Thorax black (greased); bristles, 2-3 humeral, 3 presutural, 3 supraalar, 2-3 postalar, 3 posterior and 1 anterior dorsocentral; scutellum with 4 strong and 1 weak marginal bristles. Tergites 1-2 black, 3-7 brown; 1-5 and sides of 6 gray pollinose. Sternites 1-4 black, 5-7 reddish brown; 1-5 densely gray pollinose but 5 with narrow central triangular bare streak broadest at base; terminalia brown, apical spines yellowish, 4 on each side. Legs yellowish red; fore femora with brown extending on venter and on dorsum and slightly on posterior side above; middle femora similar but brown does not extend on posterior side; hind femora brown except base and apex and a reddish streak on dorsal posterior surface; hind tibiae brownish on apical 4/5 of anterior side and hind tarsi slightly brownish. Halteres dirty yellowish. Anterior crossvein at 14/30 length of discal cell; posterior cells 1 and 4 open about two times length of anterior crossvein.

PARATYPE. One female, Los Angeles County, California, July. Collection Coquillett. Paratype no. 7949 USNM. Another female, same data, has the fore coxae largely and the middle and hind ones in part reddish.

Specimens now available are from the following localities: CALIFORNIA: Los Angeles County: Big Pines, 7, 16 July 1965, 1966 (J. Wilcox) JW; Table Mountain, 20 June 1968 (J. Wilcox) JW; Buckhorn Flats, 20 July 1941 (Guy F. Toland, Itol J., and J. Wilcox) JW; Chilao Camp, 20 July 1941 (J. Wilcox) JW; Mt. Lowe, 3 July 1917, summit, 4 July 1917 (J. M. Aldrich) USNM; Tanbark Flat, 30 June 1950 (F. X. Williams) CAS. Riverside County: top of Berdoo Canyon, 14 June 1963 (E. I. Schlinger) UCR; Idyllwild, San Jacinto Mountains, 20 May 1941 (E. C. Van Dyke) CAS, 28 July 1940 (L. J. McIntosh, J. Wilcox) JW; Pushawalla Canyon, 5 April 1966 (J. C. Hall) UCR. San Bernardino County: Big Bear Lake, Bear Valley and Hanna Flats, 9 June 1948, 30 July 1949 (Guy F. Toland, J. Wilcox) JW; Lake Arrowhead, 1 August 1964 (E. I. Schlinger) UCR; Rim of the World, San Bernardino Mountains, 16 August 1937 (A. J. Basinger) CAS; 3.4 miles W. of Yucca Valley, 2 May 1966 (J. Wilcox) JW.

In the type series there is a pair on the same pin, labelled: "Los Angeles, Cal. Collection Coquillett. Paratype No. 7949, U.S.N.M."; and a female, labelled: "Kern Co., Cal. Collection Coquillett. Paratype No. 7949, U.S.N.M." These specimens are not in the best condition but have been labelled S. ozenae, new species.

In other material from the USNM there are 2 males and 1 female labelled: "Los Angeles Co., Cal. Collection Coquillett. A. E. Pritchard Collection 1962" (1 male without Pritchard label); and another male labelled: "Los Angeles Co., Cal. May. A. E. Pritchard Collection 1962." These are included as paratypes of S. lomae, new species.

Los Angeles County is a large and varied area. About the northern fourth is in the Mojave Desert with an elevation of about 2000 feet; it is separated from the southern half by the San Gabriel Mountains with an elevation of 5000 to 6000

feet; the densely populated southern half consists mainly of the Los Angeles and San Gabriel river valleys which range from sea level to about 2000 feet, and with the Hollywood Hills and Santa Monica Mountains in the west and northwest. D. W. Coquillett lived in Anaheim in Orange County which includes the lower Santa Ana River Canyon and Valley, and the Santa Ana Mountains in the south. Orange County was included in Los Angeles County for the greater part of the time that Mr. Coquillett lived in California.

It should be noted that the femora of these flies become transparent on drying and that from a posterior view the black or brown on the anterior side will show through the segment.

See notes and records under S. arnaudi Martin.

Stenopogon ozenae Wilcox, new species.
(Figures 24-26.)

MALE. Length 11 mm. Head black; face and occiput white, frons golden pollinose. Hairs and bristles white, upper occipitals yellowish, hairs on frons and ocellar tubercle light brown. Antennal segments 1-2 yellowish red, hairs yellowish; 3 and style brown; segments measure 12-10-32-14, sensory area 14, in length (fig. 24).

Mesonotum black; humeri, lateral margins, postalar callosity, and a spot before scutellum reddish; grayish pollinose, intermediate spots and central stripe brown. Short hairs brown; bristles light to dark brown, 3 short humeral, 2 posthumeral, 2 presutural, 2-3 supraalar, 3-4 postalar, 3-4 posterior and 1 anterior dorsocentral; short erect posterior hairs yellowish. Pleura largely black, coxae largely reddish with more black on middle and hind ones; grayish white pollinose; hairs and bristles white. Scutellum black, grayish pollinose, 4 light brown marginal bristles.

Abdomen reddish brown, anterior margins of tergites 1-5 and central stripe of 2-6 brown; grayish pollinose, in dorsal view it appears more dense on lateral and posterior margins. Short recumbent hairs yellowish, sparse longer hairs on sides of 1-2 white; 6-7 weak yellowish lateral bristles on 1. Venter brown; grayish pollinose; short hairs yellowish. Genitalia yellowish red; hairs yellowish (figs. 25, 26, 27).

Legs reddish; anterior side of femora except base and tips brown; hind tibiae brownish on apical half or more posteriorly; hind tarsi darker. Hairs white; bristles white becoming brownish on apex of hind tibiae and on hind tarsi. Claw black, reddish basally; pulvilli light brown.

Halteres yellowish, base brown. Wings hyaline; basal, anal, and axillary cells and axillary lobe white; veins brown, anterior crossvein at 14/30 length of discal cell; anal cell narrowly open; posterior cells 1 and 4 open about two times length of anterior crossvein.

FEMALE. Length 13 mm. Middle and hind coxae mostly black; 6 scutellar bristles. Abdomen black, posterior

margins of tergites 1-5 brown; tergites 1-6 densely gray pollinose; 7-8 bare; apical spines brown; sternites dark brown, 1-6 gray pollinose, 3-5 with narrow and 6 with broad central stripe bare of pollen. Brown on anterior side of fore femora extends on dorsum, and hind femora brown except a reddish streak on posterior dorsal side. Wings very lightly tinged with brown; anterior crossvein at 20/36 length of discal cell.

HOLOTYPE. Male, California, Ventura County, Ozena Forestry Camp, upper Cuyama, 26 June 1967 (Carl W. Kirkwood) CAS.

ALLOTYPE. Female, same data, 2 July 1964, CAS.

PARATYPES. CALIFORNIA: Contra Costa County: 1 female, Canyon, 15 October 1964 (C. D. MacNeill) CIS; 1 male, Martinez, 11 October 1966 (R. M. Brown) CAS. Fresno County: 1 female, Double Meadow, 8000', 1 September 1962 (E. I. Schlinger) UCD; 4 males, 2 females, Huntington Lake, 7000-8000', 8 to 17 July 1919 (F. E. Blaisdell, F. C. Clark, Helen and E. P. VanDuzee) CAS, 2 males, 2 females, CIS. Kern County: 1 female, Frazier Park, 4500', 15 July 1961 (C. W. O'Brien) CIS; 1 female, 1 mile W. of Frazier Park, 3 July 1962, EF. Los Angeles County: 1 female, 1 mile E. of Alder Saddle, 8 July 1965 (Ross Hardy) EF. Maricopa County: 1 male, Yosemite N. P., 1 August 1940 (D. E. Hardy) USNM. Monterey County: 1 female, Arroyo Seco Camp, 16 June 1956 (R. M. Bohart) UCD; 1 male, Fort Ord, 15 July 1957 (H. M. Court) UCD; 1 male, 1 female, Junipero Serra Peak, Santa Lucia Mountains, on peak, about 5800', 11 August 1956 (Hugh B. Leech) CAS; 1 female, Lockwood, 24 July 1935 (Jean Russell) USNM; 7 females, Prunedale, 22 September 1951 (Paul H. Arnaud) JW. Riverside County: Riverside, 21 July 1936 (A. E. Pritchard) USNM. San Bernardino County: 1 male, Victorville, 24 June 1949 (H. E. Cott) UCD. San Bruno County: 1 male, Pinnacles (W. side), 2 July 1956 (E. G. Linsley) CIS. San Luis Obispo County: 1 female, Arroyo Seco River, 8 August 1938 (Jean Russell) USNM; 2 males, 6 miles N. E. of Santa Margarita, 22 June 1958 (E. G. Linsley) Adentosoma, CIS. San Mateo County: 1 female, Redwood City, 14 July 1940 (E. S. Ross) CAS; 1 male, 15 August 1940 (Paul H. Arnaud) JW. Santa Barbara County: 1 female, 5 miles N. of Lompoc, 11 August 1962 (E. I. Schlinger) UCR. Santa Cruz County: 1 male, 1 female, Santa Cruz, 19 August 1964 (C. R. Kovacic) UCD. Tulare County: 1 female, Kings River Canyon, 5000', 27 July 1914 (F. Grinnell, Jr.) USNM; 1 female, Mineral King, 31 July 1935 (G. E. Bohart) UCD; 1 female, 15 August 1962 (W. E. Simonds) CDA; 14 males, 33 females, Sequoia National Park (vicinity of Lodge Pole Camp Ground), 22 August 1947 (Guy F. Toland, J. Wilcox) JW. Ventura County: 47 males, 67 females, type locality, 29 June to 10 July 1964, 22 to 27 June 1967 (Carl W. Kirkwood) EF, JW; 1 female, Quatal Canyon, 3800', N. E. corner of County, 15 July 1965, UCD.

A number of the specimens, especially the females, have the hind femora black and a few the humeri black. The color is frequently obscured by the dense pollen. As you go north in the mountains, part of the specimens have the humeri, lateral

margins of the mesonotum, and the postalar calli reddish and also the neck and pleura in part reddish. Some of the coastal specimens have the thoracic and leg bristles nearly black especially in the males. See note under S. bartonae new species.

Stenopogon utahensis Bromley.
(Figures 32-35.)

Stenopogon utahensis Bromley, 1951, Amer. Mus. Novitates no. 1532, p. 8. Types male and female, Leeds, Utah, June 20, 1929 (E. G. Anderson) USNM. Paratype, female, same data, USNM.

MALE. Length 9 mm. Head black; face and occiput white, frons gray pollinose. Hairs and bristles white. Antennal segments 1-2 yellowish, 3 and style brown; hairs white; segments 14-8-29-11, sensory area 8, in length (fig. 32).

Mesonotum black; grayish yellow pollinose; divided central stripe and intermediate area indistinctly brownish. Short hairs white, longer posteriorly. Bristles white; 3 short humeral; 1 posthumeral; 2 presutural; 3 supraalar; 2 postalar; 4 posterior and 1 anterior dorsocentral. Pleura black, coxae yellowish; golden gray pollinose; hairs and bristles white. Scutellum black; grayish pollinose; 6 white marginal bristles.

Abdomen brown becoming yellowish red apically; gray pollinose. Hairs short white, longer on sides of 1-2; 6 weak, white, lateral, bristles on 1. Sternites brown, yellowish apically; gray pollinose; short hairs white. Genitalia yellowish red; hairs yellowish (figs. 33, 34, 35).

Legs yellowish; middle femora with a basal spot on the anterior side and hind femora with a median brown spot on the anterior side; hind tibiae brown except dorsally. Hairs and bristles white; claws black, base reddish; pulvilli yellowish white; empodia yellowish.

Halteres yellowish white, base brown. Wings hyaline; veins brown; anterior crossvein at 10/23 length of discal cell; posterior cells 1 and 4 open about two times length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 10 mm. Four humeral and 2-3 presutural bristles. Coxae brown in ground color. Tergites 1-6 gray pollinose, 7-8 bare; apical spines reddish brown. Halteres light brown.

DISTRIBUTION. ARIZONA: Maricopa County: Phoenix, 26 June 1941 (F. H. Parker) USNM. Gila County: Globe, 13 June 1935 (F. H. Parker) USNM. CALIFORNIA: Imperial County: Clark Valley, 2 May 1932 (H. Gentry) CAS. Inyo County: Bigpine Creek, 6500', 7 August 1966 (J. Wilcox) JW; 12 miles S. of Bishop, 2 July 1967 (M. E. Irwin) UCR; Lone Pine, 4500', 19 April 1947 (R. M. Bohart) USD; Wyman Canyon, White Mountains, 20 July 1967 (Saul and Suzy Frommer) UCR. Mono County: 8 miles W. of Benton, 20 July 1964 (J. Wilcox) JW. Riverside County: Carrizo Creek, 30 May 1963 (E. I. Schlinger) UCR; Deep Canyon, 20-24 June 1969 (S. Frommer, B.

Worley) UCR; Palm Springs, 2 May 1953 (R. M. Bohart) UCD; 6 May 1946 (A. L. Melander) USNM; 10 May 1941 (E. C. Van Dyke) CAS; 28 to 31 May 1943 (A. F. Howland, Guy F. Toland, John and J. Wilcox) JW; 30 May 1927 (A. C. Davis) CAS; 2 miles N., 10 May 1941 (P. H. Timberlake) UCR. San Diego County: Borego, Valley and dunes, 4 April to 2 May 1940 to 1957 (J. E. Gillaspy, P. D. Hurd, M. Wasbauer) CIS; (R. C. Bechtel, R. M. Bohart, H. R. Moffitt, E. I. Schlinger) UCD; (P. H. Timberlake) UCR; (A. L. Melander, John Sperry) USNM; 31 April 1932 (H. Gentry) CAS; Tub Canyon, 20 April 1949 (N. Crickmer, Grace H. and John L. Sperry) USNM. NEVADA: Clark County: Glendale, 13 May 1961 (R. W. Thorp) CIS; Nye County: 12 miles E. of Tonapah, 7 July 1968 (R. F. Denno, D. R. Miller) UCD. UTAH: Washington County: Leeds, 1 June 1963 (J. Wilcox) JW, 20 June 1929 (E. G. Anderson) 1 female paratype, USNM; 7 miles N. of St. George, 1 June 1963 (J. Wilcox) JW.

Many of the males have the legs all yellowish red and others have anterior brown spots on all femora. The females usually have these brown spots on the anterior side of the femora; on the fore and middle femora they are usually basal but on the hind femora they occupy a large middle area with the base and apex reddish.

BOHARTI GROUP

Facial gibbosity weak and extending about half way from oral margin to the antennae; mystax composed of very sparse long bristles and confined to the gibbosity; occipital bristles short and strong, straight to slightly curved forward; antennal segments 1-2 with short sparse hairs, segment 3 about 1 1/2 times as long as 1-2, style short. Anterior mesonotal hairs short recumbent; no anterior dorsocentral bristles; hypopleura bare. Abdominal tergites 1-3 with lateral bristles; tergites and sternites with short recumbent hairs; male hypandrium fish-tail shaped. Coxae with long, strong, sparse bristles. Wings with posterior cell 1 broadly open, 4 closed at wing margin to short petiolate.

Stenopogon boharti Bromley is the only species in this group to date.

Stenopogon boharti Bromley.
(Figures 36-39.)

Stenopogon boharti Bromley, 1951, Amer. Mus. Novitates no. 1532, p. 6. Types, male and female, Yuma, Arizona, May 6, 1939 (R. M. Bohart) USNM?

Stenopogon rossi Martin, 1968a, Proc. Calif. Acad. Sci., vol. 35, p. 393, fig. 2. Type male, Coyote Cove, Concepion Bay, Lower California, 1 October 1941 (Ross and Bohart) CAS; paratype, 1 male, same data. New Synonymy.

Length 13-19 mm. Yellowish red; head, antennal segment

3 and style, prothorax, central and intermediate mesonotal stripes, spots on mesopleura, sternopleura, and epimeron, black. Head and thorax densely and abdomen thinly, white pollinose. Hairs and bristles yellow; no anterior dorsocentral bristles and 3-4 weak posterior ones; mesonotal hairs short recumbent; abdominal tergites 1-3 with 6-12 lateral bristles, stronger on 1. Wings light brown; veins light brown to yellowish; anterior crossvein at 31/61 length of discal cell; posterior cell 1 open subequal to length of anterior crossvein, 4 closed at wing margin to short petiolate; anal cell narrowly open. Antennal segments 35-20-90-15, sensory area 45, in length (figs. 36, 37, 38, 39).

DISTRIBUTION. ARIZONA: Maricopa County: Cave Creek, 6 July 1941 (F. H. Parker) USNM; Goldfield, 30 May 1958 (J. C. Hall) UCD; Granite Reef Dam, 7 August 1964 (Jim Haddock) ASU. Pinal County: Picacho Pass, 2 September 1968 (J. E. Lauck, D. R. Miller) UCD. Yuma County: Mohawk and 1 mile E., 11, 20 May 1965, 10 September 1947 (J. Wilcox)JW; 15 miles E. of Quartzite, 16 September 1959 (P. H. Timberlake) UCR; Yuma (see above). CALIFORNIA: Imperial County: 12 miles S. of Palo Verde, 19 April 1962 (Eric Fisher) EF. Riverside County: Deep Canyon, 24 June 1966, 1 July 1964, 26/27 June, 3/7 July 1969 (K. W. Brown, Saul Frommer, P. A. Rauch; E. I. Schlinger, B. Worley) part in flight trap, UCR; Hayfield Road, 6.5 miles W. of Highway 60-70, 4 June 1960 (P. H. Timberlake) on Eriogonum inflatus, UCR; Palm Springs, 31 May 1943 (Guy F. Toland) JW; 26 June 1952 (A. T. McClay) UCD; Tahquitz Canyon, 8 June 1957 (Menke, Stange, Bromley) LACM. San Diego County: 13 miles E. of Borrego Springs, 7 October 1967 (G. E. Lytle, S. A. Gorodenski, M. A. Cazier) ASU. MEXICO: Baja California del Norte: Arroyo de Calamajue, 16 June 1968, on moist spots along alkaline stream, 39 miles W. of Bahia de Los Angeles, 17 June 1968, 13 miles S. E. Millers Landing, 22 June 1968, San Angel, 28 June 1968 (N. Lappla, M. Bentzien, J. Bigelow, S. Williams, M. Cazier, J. Davidson, W. Fox) ASU. Baja California Sur: Coyote Cove (see above); 3 miles S. E. of Pozo Grande, 4 July 1928 (N. Nappla, J. Davidson, J. Bigelow, M. Bentzien, W. Fox, S. Williams, M. Cazier) ASU; 3 miles E. of San Ignacio, 560', 14 April 1968 (M. E. Irwin) flight trap, UCR. Chihuahua: 4 miles N. Ciudad Camargo, 29 July 1967 (R. C. Gardner, C. R. Kovacic, K. Lorenzen) UCD. Sonora: 40 miles N. W. of Santa Ana, 20 August 1967 (A. R. Hardy) UCR.

The mesonotal stripes are larger and the pleura is largely black in the spring specimens. Spring and fall emergence is not unusual for species of desert areas, emergence depending on the infrequent rains.

BREVIUSCULUS GROUP

Facial gibbosity extends about 3/4 distance from oral margin to the antennae; mystax composed mainly of stout bristles; occipital bristles strong, the upper ones curved forward at nearly a right angle. Ground color of the thorax,

abdomen, and legs in part yellowish to brown and at times largely so. Thorax and abdomen covered with dense golden brown pollen except the apical segments of the females. Bristles of the coxae mostly strong. Wings hyaline and short, not reaching the base of abdominal tergite 6, some females with a brown clouding along the veins and crossveins. The entire insect is without black hairs or bristles; the hairs and bristles are usually yellowish or reddish but in a few they are nearly white. The proctiger is extremely developed in S. breviusculus Loew but this is not the case in the other species.

Key To The Species (Males)

1. Hypandrium (male sternite 9) in lateral view, longer than the upper forceps 2
   Hypandrium shorter than the upper forceps 3

2. Proctiger long, bent down in lateral view and extending beyond apex of hypandrium; usually 3-4 anterior dorsocentral bristles; posterior cell 4 open subequal to length of the anterior crossvein; length 15-22 mm. (California, Baja California del Norte). . . . S. breviusculus Loew
   Proctiger inconspicuous, shorter than upper forceps; 8-9 anterior dorsocentral bristles; posterior cell 4 narrowly open or closed at the wing margin; length 14-15 mm. (California) . . . . . S. linsleyi Wilcox, new species

3. Upper forceps in lateral view, distinctly longer than the hypandrium 4
   Upper forceps slightly longer than hypandrium, both short 7

4. Hind tibiae and tarsi black to brown, hind femora brown except ventrally; antennae brown; abdomen largely brown in ground color; posterior cell 4 narrowly open to closed and short petiolate; length 14-17 mm. (California) . . . . . S. brookmani Wilcox, new species
   Hind tibiae and tarsi reddish, hind femora reddish except for dorsal brown stripe, at least antennal segment 1 reddish 5

5. Bristles of the mesonotum yellowish white; mesonotum black except the humeri and postalar calli reddish; antennal segments 1-2 yellowish red; 9-10 anterior dorsocentral bristles; length 15-17 mm.

(California). . . . . S. jurupae Wilcox, new species
Bristles of the mesonotum reddish yellow 6

6. Mesonotum red, central and intermediate stripes black; antennal segments 1-2 yellowish red; 8-9 anterior dorsocentral bristles; arms of hypandrium broad, approximate, with tuft of long hairs apically; length 16-22 mm. (California) . . . . . S. powelli Wilcox, new species
Mesonotum black, humeri and postalar calli reddish; antennal segment 1 yellowish red, 2 brown; 6-7 anterior dorsocentral bristles; arms of hypandrium slender, widely separated, with short inconspicuous hairs at apices; length 15-16 mm. (California) . . S. williamsi Wilcox, new species

7. Arms of hypandrium with evenly scattered hairs; anterior mesonotal hairs as long as antennal segments 1-2; abdominal tergites 2-5 black basally; fore femora with long hairs below; antennal segment 1 reddish; length 16-19 mm. (Oregon, California) . . . . . S. propinquus Bromley
Arms of hypandrium with a dense tuft of hairs at apex; anterior mesonotal hairs as long as antennal segment 1; abdominal tergites 2-3 black basally; fore femora below with 6 weak bristles; antennal segments 1-2 usually reddish; length 16-21 mm. (California) . . . . . S. breviusculoides Bromley

Stenopogon breviusculus Loew.
(Figures 40-43.)

Stenopogon breviusculus Loew, 1872, Berlin. Ent. Ztschr., vol. 16, p. 68 (Cent. 10, no. 28). Types, male and female, California (H. Edwards) MCZ.
Stenopogon breviusculus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 196, pl. XII, fig. 3. Description.
Stenopogon breviusculus Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 299, fig. 1 (lateral view of male genitalia but inverted; fig. 2 of S. breviusculoides Bromley is in the normal position).

MALE. Length 19 mm. Head black; face yellowish white, frons yellowish brown and occiput grayish white pollinose. Hairs and bristles yellowish; on frons and ocellar tubercle brownish. Antennal segment 1 yellowish, remainder black; hairs yellowish; segments 25-18-63-24, sensory area 21, in length (fig. 40).

Mesonotum yellowish red; central and intermediate stripes black; yellowish pollinose, divided central stripe and intermediate areas brown. Hairs yellowish red, anteriorly semirecumbent and subequal in length to antennae 2; longer laterally and posteriorly. Bristles yellowish; 9 short humeral; 7 posthumeral; 5 presutural; 13 supraalar; 8 postalar; 9 posterior and 4 anterior dorsocentral. Pleura and coxae yellowish red, mesopleura, sternopleura, and epimeron with black spots; golden pollinose becoming white below; hairs and bristles yellowish. Scutellum yellowish red; densely yellowish pollinose; 10 yellowish marginal bristles.

Abdomen yellowish red; tergites 2-3 with anterior dorsal spots and narrow lateral margins of 4-7 black; densely yellowish brown pollinose. Hairs short, yellowish, longer on sides of 1-3; 8 yellowish lateral bristles on 1. Sternites yellowish red; densely yellowish brown pollinose; hairs yellowish, long erect on 1-3. Genitalia yellowish red; hairs yellowish (figs. 41, 42, 43).

Femora yellowish red; dorsum of all and fore and middle ones with a ventral anterior streak black. Tibiae and tarsi brown, fore and middle ones lighter ventrally. Hairs and bristles yellowish; claws black, base reddish; empodia and pulvilli yellowish.

Halteres yellowish, knob brown. Wings hyaline; veins brown; anterior crossvein at 26/56 length of discal cell; posterior cells 1 and 4 open slightly more than the length of the anterior crossvein; anal cell narrowly open.

FEMALE. Length 20 mm. Abdominal tergites 7-8 bare of pollen; apical spines brown.

DISTRIBUTION. CALIFORNIA: Fresno, Los Angeles, Mono, Monterey, Orange, Riverside, San Bernardino, San Diego, San Francisco, San Luis Obispo, and Santa Barbara counties. MEXICO: Baja California del Norte: Tijuana, 1 September 1941 (W. R. Cobb) JW. June to October but mainly collected in July and August.

Mainly a species of southern California; see note under S. breviusculoides Bromley.

Stenopogon breviusculoides Bromley.
(Figures 44-47.)

Stenopogon breviusculoides Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 299, fig. 2 (male genitalia). Types, male and female, Monterey, California, July 22, 1935 (Jean Russell) UK. Paratypes; same data and Cuyama Ranch, California, July 25, 1935 (E. I. and R. H. Beamer, Jean Russell) UK.

MALE. Length 15 mm. Head black; densely yellowish white pollinose. Hairs and bristles yellowish. Antennal segments 1-2 and narrow base of 3 yellow, remainder black; hairs yellowish; segments 24-15-48-18, sensory area 13, in length (fig. 44).

Mesonotum yellowish red; central and intermediate stripes

black; densely grayish brown pollinose; divided central stripe and intermediate areas brown. Hairs yellowish red, anteriorly semierect and as long as antennae 1; longer posteriorly and laterally. Bristles yellowish red; 11 short humeral; 8 posthumeral; 4 presutural; 10 supraalar; 6 postalar; 8 posterior and 7 anterior dorsocentral. Pleura largely and base of fore coxae black, remainder yellowish red; densely brownish pollinose; hairs and bristles yellowish. Scutellum black; yellowish pollinose; 10 yellowish marginal bristles.

Abdomen yellowish red; dorsum of 2 basally and 3-7 with small central basal spots black; densely yellowish brown pollinose. Hairs short yellowish, longer on sides of 1-3; 8 yellowish lateral bristles on 1. Sternites yellowish; densely yellowish brown pollinose; hairs short yellowish, longer erect on 1-2. Genitalia yellowish red; hairs yellowish, short dense on apices of hypandrium (figs. 45, 46, 47).

Femora yellowish red; fore with narrow posterior dorsal stripe and anterior basal spot, middle similar but anterior basal stripe extends to middle, hind similar but both stripes extend nearly to apex, black. Fore and middle tibiae and tarsi yellowish red, hind ones brown. Hairs and bristles yellowish; claws black, base reddish; pulvilli yellowish; empodia yellowish red.

Halteres yellowish, base brown. Wings hyaline; veins light brown; anterior crossvein at 18/45 length of discal cell; posterior cells 1 and 4 open about 1/2 length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 17 mm. Abdominal segments 7-8 bare of pollen; apical spines brown. Anterior crossvein at 23/50 length of discal cell; posterior cell 1 open subequal to length of anterior crossvein, 4 closed at wing margin (sometimes short petiolate).

DISTRIBUTION. CALIFORNIA: Alameda, Contra Costa, Kern, Kings, Marin, Monterey, Sacramento, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, and Yolo counties: May to October but most records August and September.

This is mainly a species of central California while S. breviusculus Loew is mainly a species of southern California but the ranges overlap in the coastal areas from Santa Barbara to San Francisco counties.

Recently specimens were received that were nearly black except: small dark reddish spots on pleura; sternites part reddish; hypandrium reddish; coxae in part and venter of legs reddish. Wings brown, lighter within the cells; axillary lobe and cell white in the male. They were taken in Marin County, Point Reyes Peninsula, 8 miles N. W. of Inverness, 12 September 1967 (Thomas W. Davies) CAS. Fortunately males were present and it was easy to identify them, but with only females it would have been difficult.

Stenopogon brookmani Wilcox, new species.
(Figures 48-51.)

MALE. Length 14 mm. Head black; face and occiput yellowish gray, frons light yellowish brown pollinose. Hairs and bristles yellowish white. Antennal segments 1-2 brown, 3 and style black; hairs yellowish; segments 19-15-49-17, sensory area 15, in length (fig. 48).

Mesonotum brown, humeri reddish; golden brown pollinose, divided central stripe and confluent intermediate area brown. Hairs yellowish white, anteriorly subequal in length to antennae 1. Bristles yellowish; 4-5 short humeral; 5-6 posthumeral; 3-4 presutural; 6 supraalar; 4 postalar; 8 posterior and 5 anterior dorsocentral. Pleura largely black, coxae largely reddish; golden brown pollinose; coxal bristles yellowish white, sternopleural hairs white. Scutellum black; golden brown pollinose; 8 yellowish marginal bristles.

Abdomen brownish black, sides and posterior corners reddish; grayish golden pollinose. Hairs short white, longer on sides of 1-3; 6-7 yellowish lateral bristles on 1. Sternite 1 black, remainder yellowish red; yellowish pollinose; hairs short yellowish, erect on 1-3. Genitalia reddish brown, lower forceps black; hairs yellowish, white long in a loose tuft at apices of hypandrium (figs. 49, 50, 51).

Femora black, venter and anterior side, apically of fore pair, and venter of middle and hind ones reddish; fore tibiae and tarsi and base of middle tibiae reddish, remainder black. Hairs and bristles yellowish white, 9-10 bristles below on fore femora; claws black, base reddish; pulvilli yellowish; empodia reddish.

Halteres light brown. Wings hyaline; veins dark brown; anterior crossvein at 18/39 length of discal cell; posterior cells 1 and 4 open, about 2/3 the length of the anterior crossvein; anal cell closed.

FEMALE. Length 16 mm. Postalar calli reddish. Abdomen greased but pollen confined to tergites 1-6; tergite 1, anterior margins of 2-3, and posterior corners of 2-4 reddish, remainder brownish black; apical spines reddish brown. Middle tarsi largely and base of hind tarsal segments reddish. Wings tinged with brown along the veins; anterior crossvein at 21/42 length of discal cell.

HOLOTYPE. Male, Mariposa, Mariposa County, California, 7 June 1940 (B. Brookman, T. Aitken, M. Cazier) CAS.

ALLOTYPE. Female, same data, CAS.

PARATYPES. 8 males, 11 females, same data, and (E. C. Van Dyke) CAS; 6 males, 6 females, CIS; 1 female, CDA. CALIFORNIA: Fresno County: 1 female, Squaw Valley, 13 June 1954 (J. C. Hall) UCD; 5 males, 13 females, Watts Valley, 22, 23 June 1956 (B. J. Adelson, R. O. Schuster) CIS. Madera County: 2 males, 2 females, Friant, 5 June 1942 (E. G. Linsley) CIS; 1 male, Lake Millerton, 15 May 1965 (L. A. Stange, A. S. Menke) UCD. Mariposa County: 1 male, 6 females, 2 miles S. of Mariposa, 7 June 1940 (M. A. Cazier) AMNH; 1 male, 1 female, Mormon Bar, 7 July 1940 (M. A. Cazier) AMNH. Tulare County: 2 females, Lindsay, 31 May 1911 (J. R. Horton) USNM. Tuolumne County: 1 male, 5 miles E. of Oakdale,

6 May 1961 (R. W. Brown) CAS.

Named in honor of Bernard Brookman who collected and assembled a large collection of Asilidae and intended to review the genus Stenopogon Loew. When his interests turned mainly to medical entomology, he donated his collection to the California Academy of Sciences.

Stenopogon jurupae Wilcox, new species.
(Figures 52-55.)

MALE. Length 15 mm. Head black; face whitish, frons golden brown, occiput white pollinose. Hairs and bristles yellowish white. Antennal segments 1-2 yellowish red, 3 and style black; hairs yellowish; segments 23-15-45-21, sensory area 16, in length (fig. 52).

Mesonotum black; humeri and postalar calli reddish; brownish pollinose with touches of gold; divided central stripe and intermediate spots brown but not well defined. Hairs yellowish, anteriorly erect and as long as antennae 1. Bristles yellowish; 10-11 short humeral; 6-7 posthumeral; 4 presutural; 8 supraalar; 6 postalar; 9-10 posterior and 9-10 anterior dorsocentral. Pleura and coxae largely reddish; golden brown pollinose; coxal bristles yellowish; sternopleural hairs white. Scutellum black; golden brown pollinose; 10 yellowish marginal bristles.

Abdomen reddish brown, base of 2-3 black; yellowish gray pollinose. Hairs yellowish white, short semiappressed, longer on sides of 1-3; 5-6 yellowish white lateral bristles on 1. Sternites reddish; yellowish pollinose; hairs yellowish, longer on 1-3. Genitalia yellowish red; hairs yellowish (figs. 53, 54, 55).

Legs yellowish red; posterior side of fore and dorsum of middle and hind femora brownish black except apical 1/6; hind tibiae darker anteriorly. Hairs yellowish white; bristles yellowish, 6-7 below on fore femora; claws black, base reddish; pulvilli and empodia reddish.

Halteres yellow, base light brown. Wings hyaline; veins light brown; anterior crossvein at 18/48 length of discal cell; posterior cell 1 open subequal to and 4 open 1/2 length of anterior crossvein; anal cell closed.

FEMALE. Length 17 mm. Abdomen largely brownish black; tergite 1, apical 1/2 of 2-4 and posterior margin of remainder reddish; dorsal V on 6 and all of 7-8 bare of pollen; apical spines reddish. Knob of halteres brown. Wings dilute brown; veins brown; anterior crossvein at 23/47 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein.

HOLOTYPE. Male, Riverside, California, 15 June 1941 (J. Wilcox) CAS.

ALLOTYPE. Female, same data, CAS.

PARATYPES. 2 pairs, 28 males, 45 females, same locality, 15 to 22 June 1941 (A. F. Howland, Guy F. Toland, John, J.Jr. and J. Wilcox) JW. CALIFORNIA: Riverside County: 1 male, Alberhill, 5 May, 1965 (L. J. Coudon) EF; 1 male, The Gavilan,

29 April 1930 (C. Dammers) USNM, 1 male, 31 May 1941 (A. F. Howland) JW.

The type locality is about 4 miles west and about 1 mile north of Riverside, on the east slope or base of the Jurupa Mountains.

Stenopogon linsleyi Wilcox, new species.
(Figures 56-59.)

MALE. Length 14 mm. Head black; face white above and golden below, frons golden brown, occiput white pollinose. Hairs and bristles yellowish, beard yellowish white. Antennal segment 1 yellowish red, 2 brown, 3 and style black; hairs yellowish; segments 24-14-50-19, sensory area 20, in length (fig. 56).

Mesonotum brown; humeri, area between humeri and central stripe and postalar calli, yellowish; golden brown pollinose, central stripe and broad intermediate area brown. Hairs yellowish sparse, anteriorly as long as antennae 1. Bristles yellowish; about 7 short humeral; 6 posthumeral; 6 presutural; 6 supraalar; 8 postalar; 11 posterior and 9 anterior dorsocentral. Pleura and coxae mostly reddish; golden brown pollinose; bristles on coxae yellowish; sternopleural hairs white. Scutellum black; golden brown pollinose; 8 yellowish marginal bristles.

Abdomen brown, base of tergite 2 and small anterior spots on 3 black; densely golden pollinose. Hairs yellowish, short appressed, longer on sides of 1-3; 7 yellowish lateral bristles on 1. Sternites reddish; golden pollinose; hairs yellowish, long erect on 1-3. Genitalia yellowish red; sparse hairs yellowish (figs. 57, 58, 59).

Legs yellowish red; posterior dorsum and an anterior basal spot on fore, posterior dorsum and a basal anterior streak on middle, and posterior dorsum extending over dorsum on anterior side of hind femora, black; hind tibiae a little darker anteriorly. Hairs and bristles yellowish; claws black, base reddish; pulvilli and empodia yellowish.

Halteres yellowish, base light brown. Wings hyaline; veins brown; anterior crossvein at 17/41 length of discal cell; posterior cell 1 open subequal to and 4 open 1/2 length of anterior crossvein; anal cell closed at wing margin.

FEMALE. Length 17 mm. Abdominal tergites 2-4 with lateral anterior spots and a central spot black; a dorsal V-shaped spot on 6, broad dorsum of 7 and all of 8 bare of pollen; apical spines reddish. Anterior crossvein at 23/50 length of discal cell (2 anterior crossveins in one wing); posterior cell 4 closed at wing margin.

HOLOTYPE. Male, Tuckers Grove, Santa Barbara, Santa Barbara County, California, 5 July 1956 (E. G. Linsley) CIS.

ALLOTYPE. Female, same data, CIS.

PARATYPES. Male and female, same data, CIS. CALIFORNIA: San Luis Obispo County: 1 male, San Luis Obispo, 26 June 1935 (C. C. Wilson) Sacramento no. 3553, USNM.

Named in honor of E. Gorton Linsley, a most consistent, persistent, and successful collector of material for the

California Insect Survey, University of California, Berkeley.

Stenopogon powelli Wilcox, new species.
(Figures 60-63.)

MALE. Length 16 mm. Head black; face and occiput white, frons golden pollinose. Hairs and bristles yellowish red. Antennal segments 1-2 and base of 3, yellowish red, remainder black; hairs yellowish; segments 25-15-50-17, sensory area 13, in length (fig. 60).

Mesonotum yellowish red, central stripe and intermediate area brown; yellowish gray pollinose, central stripe divided. Hairs yellowish, semierect, anteriorly subequal in length to antennae 1. Bristles yellowish red; 10 short humeral; 8 posthumeral; 6-7 presutural; 9-10 supraalar; 6-7 postalar; 9-10 posterior and 8-9 anterior dorsocentral. Pleura and coxae largely reddish in ground color; golden gray pollinose; bristles yellowish white, sternopleural hairs white. Scutellum brown; golden gray pollinose; 10 yellowish marginal bristles.

Abdomen yellowish red, base of 2-4 dorsally and narrow dorsal stripe on 5-7 blackish; grayish golden pollinose. Hairs yellowish white, longer on sides of 1-3; 6-7 yellowish lateral bristles on 1. Sternites yellowish red, 6 largely and base of 7 black; yellowish pollinose; hairs yellowish, erect on 1-3. Genitalia yellowish red; hairs yellowish, arms of hypandrium apically with dense long yellowish hairs (figs. 61, 62, 63).

Legs yellowish red; posterior dorsal side except apex of femora and on the hind ones extending slightly on the anterior side, black. Hairs and bristles yellowish, 7 slender bristles below on fore femora; claws black, base reddish; pulvilli reddish white; empodia reddish.

Halteres dull yellowish red. Wings hyaline; veins brown; anterior crossvein at 22/45 length of discal cell; posterior cell 1 open subequal to and 4 open about 1/2 length of anterior crossvein; anal cell closed at wing margin.

FEMALE. Length 17 mm. Tergites 1-6 of abdomen pollinose, dorsum of 6 and all of 7-8 bare of pollen; apical spines reddish brown. Hind tibiae brownish anteriorly and middle tibiae darkened.

HOLOTYPE. Male, 3 miles N. of Pozo, San Luis Obispo County, California, 1 May 1962 (J. Powell) CIS.

ALLOTYPE. Female, Pozo, California, 1 May 1962 (P. D. Hurd) CIS.

PARATYPES. CALIFORNIA: Alameda County: 1 male, Niles, 29 May 1928, CAS. Lake County: 1 male, Lakeport, June 1917 (J. Bentley) LACM. Calaveras County: 1 male, 1 female, Mokelumne Hill, 6 June 1896 (F. E. Blaisdell) CAS. Merced County: 1 female, Merced, 16 June 1938, CAS. Sacramento County: 2 males, 2 females, Folsom, 11 May 1960 (M. Wasbauer) Calcohortus luteus, CDA, 2 females, 19 May 1955, 22 May 1938 (P. D. Hurd, Q. Tomich) CIS; 1 male, 12 May 1953 (R. M. Bohart) UCD; 1 female, N. Sacramento, 17 May 1953 (P. D.

Hurd) CIS. San Benito County: 2 males, 2 females, Pinnacles (west side), 2 July 1956 (P. D. Hurd) Hemizonia lobbii, CIS. San Joaquin County: 1 male, Lodi, 1 June 1954, UCD. San Luis Obispo County: 2 males, 4 females, La Panza, 27 May 1935 (C. C. Wilson) Sacramento no. 3551, USNM; 2 males, 2.5 miles S. of Creston, 4 May 1962 (R. W. Thorp) CIS; 1 male, 1 female, 3 miles E. of Pozo, 1 June 1962 (R. W. Thorp) CIS. Santa Clara County: 1 male, Harkins Collection, Stanford University, LACM; 1 male, Lake Hills, 23 May 1928 (Carl D. Duncan) CAS; 1 male, 1 female, 7 miles S. of San Antonio Ranger Station, 27 June 1952 (C. D. MacNeill, R. O. Schuster) CIS; 3 males, 1 female, San Antonio Valley, 21 June 1951, 27 June 1953 (W. C. Bentinck, C. D. MacNeill, M. Wasbauer) CIS; 1 male (J. E. Gillaspy) AMNH. Stanislaus County, 1 female, La Grange, 8 May 1960 (R. P. Allen) CDA; 1 male, 2 miles N., 22 April 1956 (J. I. Stage) CAS. Tulare County: 3 males, 3 females, 27 March, 24, 27 April, 28 May 1947 (Norman W. Frazier) Rotary Trap, CIS. Yolo County: 1 female, Davis, 27 May 1954, UCD.

Named in honor of Jerry A. Powell, University of California, Berkeley, another of the enthusiastic and effective collectors for the California Insect Survey.

Stenopogon propinquus Bromley.
(Figures 64-67.)

Stenopogon propinquus Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 298. Type, male, Pete's Butte, July 10, 1930 (Robert L. West) CAS, female, San Diego County, California, April 13, 1914 (E. P. Van Duzee) CAS. Paratypes: 2 males, same data as holotype, JW; 2 males, 1 female, San Diego County, April 13, 1914, June 21, 1914, August 13, 1913 (E. P. VanDuzee) CAS; 1 male, 1 female, Mokelumne Hill, California, June 6, 1896 (F. E. Blaisdell) CAS; 1 male, Millbrae, San Mateo County, California, September 1, 1912 (F. E. Blaisdell) CAS.

MALE. Length 18 mm. Head black; face yellowish, frons yellowish brown, occiput white pollinose. Hairs and bristles yellowish red. Antennal segment 1 red, 2 brown, 3 and style black; hairs reddish; segments 23-16-55-20, sensory area 16, in length (fig. 64).

Mesonotum black, humeri and postalar calli reddish; light brown pollinose, divided central stripe brown. Hairs reddish, semierect, anteriorly subequal in length to antennae 1-2, longer posteriorly and laterally. Bristles reddish; 5 short humeral; 5 posthumeral; 4 presutural; 9 supraalar; 7 postalar; 8 posterior and 5 anterior dorsocentral. Pleura mostly black; coxae reddish, black basally; densely light brown pollinose; hairs and bristles reddish. Scutellum black; brownish pollinose; 14 reddish marginal bristles.

Abdomen reddish; narrow base of tergite 1, broad base of 2-3 and narrow dorsum of 4-7 black; densely yellowish brown pollinose. Hairs short yellowish red, longer on sides of

1-4; 5 yellowish red lateral bristles on 1. Sternites reddish; densely light brown pollinose; hairs yellowish red, long erect on 1-4. Genitalia reddish brown; hairs yellowish red (figs. 65, 66, 67).

Legs yellowish red; posterior side except tips and extending on anterior side on basal half of fore, anterior dorsal side extending over dorsum on posterior side except at tips of middle and hind femora, black. Hairs and bristles yellowish red; claws black, base reddish; pulvilli light brown; empodia reddish.

Halteres yellowish red. Wings hyaline; veins brown; anterior crossvein at 21/49 length of discal cell; posterior cell 1 open subequal to and 4 open about 1/2 length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 19 mm. Bristles and hairs yellowish. Abdomen black, sides of 1-7 and extending inward of posterior margins of 2-4 reddish; sides of 6 and all of 7-8 bare of pollen; apical spines reddish brown. Hind tibiae and metatarsi brown and middle tibiae brownish. Wings hyaline with brown along the veins; anterior crossvein 26/55 length of discal cell; posterior cells 1 and 4 open slightly less than length of anterior crossvein.

Description made from a male paratype from Pete's Butte and a female from Willits, Mendocino County, California.

DISTRIBUTION. CALIFORNIA: Lake, Marin, Mendocino,Santa Clara, Shasta, and Sonoma counties. OREGON: Linn? and Curry counties; May to October but mostly July.

Pete's Butte, the type locality, is probably Peterson's Butte, Linn County, Oregon, about 5 miles south east of Albany and about 12 miles east of Corvallis. Robert L. West, who collected these specimens, was a student in entomology at Oregon State College and was a summer assistant at that time. Cole and Lovett (1921) report Stenopogon breviusculus Loew from Oregon: Corvallis, VI-30 and Ione, VII-22, which might be this species.

It is doubtful if any of the specimens listed from California by Bromley (1937) belong to this species. Only one of his California specimens has been examined, but specimens from the same localities have, and none of them appeared to belong to S. propinquus. The paratype male from Millbrae is S. breviusculoides Bromley. The allotype of S. williamsi, new species, has the same data as the allotype of S. propinquus.

Stenopogon williamsi Wilcox, new species.
(Figures 68-71.)

MALE. Length 15 mm. Head black; face and occiput whitish, frons golden pollinose. Hairs and bristles yellowish red. Antennal segment 1 yellowish red, 2 reddish brown, 3 and style black; hairs and bristles yellowish red, 3-4 bristles below on 1; segments 20-14-46-27, sensory area 10, in length (fig. 68).

Mesonotum black, humeri and postalar calli yellowish red; grayish golden pollinose, divided central stripe and

intermediate areas brown. Hairs yellowish red, erect, and as long as antennae 1. Bristles yellowish red; 7-8 short humeral; 7-8 posthumeral; 4-5 presutural; 9-10 supraalar; 7-8 postalar; 7-8 posterior and 6-7 anterior dorsocentral. Pleura and coxae largely yellowish; grayish yellow pollinose; hairs and bristles yellowish red. Scutellum black; yellowish gray pollinose; 12 yellowish red marginal bristles.

Abdomen reddish brown; dorsum of tergites 1-2, and lateral anterior spots on 3-4 black; golden brown pollinose. Hairs yellowish, longer on sides of 1-3; 7-8 lateral bristles on 1 yellowish red. Sternites light brown; grayish pollinose; hairs yellowish, long erect on 1-3. Genitalia light to dark brown, hairs yellowish; upper forceps bent down in lateral view and narrowed apically; hypandrium about 3/5 length of upper forceps, arms narrow and turned up apically and without conspicuous hairs (figs. 69, 70, 71).

Legs yellowish red, dorsum of femora except apex, brownish black. Hairs and bristles yellowish, 7 slender bristles below on fore femora. Claws black, base reddish; pulvilli reddish white; empodia reddish.

Halteres light brown. Wings hyaline; veins dark brown; anterior crossvein at 18/42 length of discal cell; posterior cells 1 and 4 open about 1 1/2 times length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 16 mm. Abdominal tergites 5-6 largely brown; dorsum of 6 and all of 7-8 bare of pollen; apical spines brown. Hind tibiae darker on apical 3/5. Anterior crossvein at 22/44 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein.

HOLOTYPE. Male, La Mesa, San Diego County, California, 6 May 1954 (F. X. Williams) CAS.

ALLOTYPE. Female, San Diego County, California, 13 April 1914 (E. P. Van Duzee) CAS.

PARATYPES. CALIFORNIA: San Diego County: 1 male, 5 August 1913 (E. P. Van Duzee) USNM; 1 male, 1 female, National City, 4 May 1890 (F. E. Blaisdell) CAS; 1 female, San Diego, 4 May 1890 (F. E. Blaisdell) CAS; 2 males, 1 female, 21 April 1916, 15 June 1934 (H. G. Dyar, C. C. Wilson) one swept from grass, USNM; 1 male, San Diego County, 21 June 1914 (E. P. Van Duzee) CAS; 1 male Harkins Collection, Santa Clara County: Stanford University, LACM.

Named in honor of the late Francis X. Williams who collected Asilidae over a period of about 50 years, probably incidentally, and contributed much information on their distribution.

CALIFORNIAE GROUP

Facial gibbosity extending about 5/6 the distance from the oral margin to the antennae; mystax composed of long slender dense bristles covering the gibbosity; occipitals hair-like and the upper ones curved forward at nearly a right angle; second segment of the palpi about three times as long as broad. Abdomen almost all reddish or yellowish red,

varying to specimens with only a narrow dorsal stripe on tergites 2-4 reddish; sternites usually largely reddish. Venter and posterior side of the middle femora yellowish red; fore femora frequently with the venter, and sometimes also with the posterior side, reddish; the hind femora are usually reddish on the apical fourth but at times the venter and posterior side will be largely or in part reddish. Male wings light to dark brown and usually with the basal part white.

Key To The Species (Males)

1. Arms of the hypandrium as long or longer than the upper forceps; proctiger extending well beyond apex of upper forceps 2
   Arms of hypandrium shorter than upper forceps; proctiger at most extending slightly beyond apex of upper forceps 3

2. Arms of hypandrium longer than upper forceps, with short quite dense orange hairs at apices; wings light brown, indistinctly white in axillary lobe and base of axillary cell; length 21-22 mm. (California) . . . . *S. kirkwoodi* Wilcox, new species
   Arms of hypandrium subequal to length of upper forceps, with long sparse orange hairs at apices; basal, anal and axillary cells and axillary lobe, white; length 18-25 mm. (California) . . . . *S. englandi* Wilcox, new species

3. Anterior mesonotal hairs dense and as long as antennae 1-2; apical 1/2 or more of hind tibiae black, usually fore and middle ones black at apex; arms of hypandrium with quite long sparse orange or brown hairs; length 15-25 mm. (California). . *S. gratus* Loew
   Anterior mesonotal hairs not longer than antennae 1 4

4. Anterior mesonotal hairs subequal in length to antennae 2; arms of hypandrium at apices with very short dense orange hairs; length 17-27 mm. (California). *S. californiae* (Walker)
   Anterior mesonotal hairs as long as antennae 1; arms of hypandrium at apices with short to long golden hairs 5

5. Hind tibiae yellowish, the tips faintly black, hairs and bristles yellowish; arms of hypandrium at apices with quite dense short golden hairs; length 19-24 mm. (California) . . . . *S. californioides* Bromley
   Apical half of hind tibiae black, hairs

and bristles brown or black; arms of hypandrium at apices with long golden hairs; length 19-25 mm. (California, Baja California del Norte) . . . . . S. blaisdelli Wilcox, new species

Stenopogon blaisdelli Wilcox, new species. (Figures 72-75.)

MALE. Length 19 mm. Head black; grayish white pollinose. Hairs and bristles yellowish, black on sides of frons and on ocellar tubercle. Antennal segments 1-2 brown, 3 and style brownish black; hairs above on 1-2 black, below mostly yellow with a few black; segments 25-16-53-30, sensory area 15, in length (fig. 72).

Mesonotum black, grayish brown pollinose, divided central stripe black. Central hairs and dorsocentral bristles brown to black (mostly rubbed off); sparse, short, and black on intermediate areas; sparse short and yellowish otherwise, longer on margins. Bristles yellowish; 7 short humeral; 4-5 posthumeral; 3-4 presutural; 7 supraalar (3 black); 7 postalar (a number broken off). Pleura and coxae black; grayish pollinose, on mesopleura brownish; hairs on coxae yellowish and dense, bristle-like, on sternopleura white. Scutellum black; 10 long marginal bristles brown to yellowish.

Abdomen yellowish red; sides of 1-6, anterior margins of 1-2, and all of 7-8, black. Hairs on sides of 1-3 long yellow, mostly short recumbent black on 1-6 and 8, on 7 golden. About 15 slender yellow lateral bristles on 1. Sternites yellow; 1, lateral margins of 2-6, anterior margin of 2, narrow posterior margins of 3-6, and 7 except narrowly at base, black; 8 brown; hairs long erect brown on 1-3, mixed yellow and brown on 4-5, short yellowish on 6-7, black on 8. Genitalia brownish black, hypandrium brown; hairs black, on hypandrium yellow and at apex of arms golden (figs. 73, 74, 75).

Legs yellowish red; basal 5/7 of fore femora black with narrow ventral streak expanded at base posteriorly, yellowish red; middle femora with dorsal anterior black spot on basal 2/3; basal 5/6 of hind femora black; apical half of hind tibiae black. Hairs and bristles yellowish; hairs on hind femora except dorsally and on hind tibiae, black; bristles on hind legs black except 3-4 whitish on femora. Claws black, base reddish; pulvilli and empodia, yellowish red.

Halteres yellowish, lower stem brown. Wings very pale brown; veins light brown; anterior crossvein at 26/50 length of discal cell, posterior cell 1 open the length of and posterior cell 4 open 2 times length of anterior crossvein.

FEMALE. Length 22 mm. Mystax with 4-5 black hairs on each side above; segment 2 light brown, remainder of antennae dark brown. Anterior central mesonotal hairs black and subequal in length to antennae 1; posteriorly longer; dorsocentral bristles black, 6 anterior ones. Tergites as in male except only narrow dorsum of 6 reddish, 7-8 black; hairs all

yellowish; sternites similar to male, hairs all yellowish, 7-8 black; apical spines brown. Fore femora broadly yellowish red below; hairs on hind femora mostly black but on hind tibiae mostly reddish; bristles of legs mostly black. Wings slightly darker than in male.

HOLOTYPE. Male, California, San Diego County, Coronado, 11 October 1890 (F. E. Blaisdell) CAS.

ALLOTYPE. Female, same data, CAS.

PARATYPES. CALIFORNIA: Los Angeles County: 2 females, (Coquillett) one with no. 112 (or 11-2), USNM; San Diego County: 2 females, same data as types and 21 October 1890, CAS; 1 female, San Diego (F. E. Blaisdell) CAS; 1 female, Mission Valley, 11 September 1927 (Van Blocker) USNM; 1 female, Poway (F. E. Blaisdell) CAS; 1 male, Warners, September 1920 (Geo. H. Field) SDNHM. MEXICO: Baja California del Norte: 1 female, "Punta Piedra" about 30 miles N. of Ensenada, 30 September 1965 (S. and S. Frommer) UCR.

The females were placed here on the basis of the brown hairs on the sides and venter of the hind femora and the largely brown bristles on the hind legs. The female from Baja California had reddish bristles on the hind legs, brown hairs on the femora, and long brown hairs on the basal sternites of the abdomen.

Named in honor of Dr. F. E. Blaisdell who collected insects in many groups before and after 1900, although his main interest was in the Coleoptera.

Stenopogon californiae (Walker).
(Figures 76-79.)

Dasypogon californiae Walker, 1849, List of the specimens of dipterous insects in the collection of the British Museum, vol. 2, p. 322. Type, male, California, BMNH.
Stenopogon californiae Bromley, 1931, Annals Entomol. Soc. Amer., vol. 24, p. 428. In key.
Stenopogon californiae Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 293, fig. 4 (male genitalia). In key to species.

MALE. Length 22 mm. Head black; face yellowish white, frons brown, occiput grayish pollinose. Hairs and bristles yellowish, on frons and ocellar tubercle brown. Antennae black; hairs brown; segments 26-17-57-26, sensory area 20, in length (fig. 76).

Mesonotum black; brownish pollinose, divided central stripe black. Anterior central hairs black and subequal in length to antennae 2, longer posteriorly; short black on intermediate areas; longer yellowish on humeri and lateral margins. Bristles yellowish; 5 short humeral; 4 posthumeral; 4 presutural; 10 supraalar; 8 postalar; dorsocentral mostly black, 8 posterior, 2-3 anterior. Pleura and coxae black; brown pollinose; hairs and bristles yellowish. Scutellum black; brown pollinose; 10 yellowish marginal bristles.

Abdomen yellowish red; tergites 1 and 8, anterior fourth of 2 and sides of 2-7 black; sides quite densely brown pollinose becoming gray apically. Hairs yellowish, long on sides of 1-3; about 10 yellowish lateral bristles on 1. Sternites yellowish red, lateral margins narrowly black; gray pollinose; hairs yellowish, long on 1-4. Genitalia black; hairs brown to black, short dense orange on apices of hypandrium (figs. 77, 78, 79).

Legs yellowish red; dorsal and anterior basal 2/3 of fore, anterior streak on basal half of middle, and hind femora except apical 1/5, black; apical 2/5 of hind tibiae brown. Hairs yellowish; bristles yellowish red; claws black, base reddish; pulvilli and empodia pale reddish.

Wings light brown; basal, anal, and axillary cells and axillary lobe white. Veins brown; anterior crossvein at 30/62 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Hairs on frons, ocellar tubercle, and antennae mostly yellowish. Short hairs on intermediate areas of mesonotum yellowish. Reddish dorsum of tergites 2-7 slightly narrower than in male and very narrow on 8; sides of 2-6 grayish brown pollinose; lateral margins of 6 and all of 7-8 bare; sternites all yellowish red; apical spines brown. Apical 1/5 of hind tibiae brown. Wings uniformly pale brown; anterior crossvein at 33/64 length of discal cell.

DISTRIBUTION. CALIFORNIA: Los Angeles, Orange, Riverside, and San Bernardino counties; June to September but mostly July and August. Females with the abdomen reddish have been seen from the mountains of Eldorado and Tulare counties and from Baja California but cannot be identified until the males are found.

Most of the specimens found in collections identified as this species were S. rufibarbis Bromley probably as a result of Back's (1909) description. Bromley (1931,1937) identified the species correctly or at least placed it in the right group. Charles H. Martin examined the type in the British Museum and was unable to match it with any of his specimens and traced it to S. gratus Loew in Bromley's (1937) key.

This species shows quite extreme variations and if the characters of the male genitalia were not consistent it would appear that several species were involved. The mystax varies from white to orange and recently a female was found with the mystax black and three others with about the upper half black. These were collected in Beverley Glen Canyon, Los Angeles County, from June to September but mostly in August and September (Eric Fisher) but in the series there were six males and five females with the mystax all yellowish. The mesonotal and leg bristles vary from white to reddish and at least one specimen was found with most of bristles on the hind legs brownish. The mesonotal hairs vary from white to reddish and one specimen was found with all the mesonotal hairs yellowish including the central hairs which are almost always black. The abdomen varies from almost all yellowish red to specimens with the narrow dorsum of tergites

2-4 reddish, however these darker specimens have the sternites largely reddish. The hind femora are yellowish red except for a basal black stripe on the anterior side and a basal black spot on the posterior side. The hind tibiae were found to be all reddish in 34 out of 54 specimens examined and more males had the tip of the hind tibiae black than females.

Stenopogon californioides Bromley.
(Figures 80-83.)

Stenopogon californioides Bromley, 1937, Jour. New York Entomol. Soc. vol. 45, p. 304, fig. 3 (male genitalia). Types, male and female, Lockwood, California, July 24 1934 (E. I. Beamer, Jean Russell) UK. Paratypes, 7 males, 15 females, same data and (Jack Beamer).

MALE. Length 19 mm. Head black; face white, frons brown and occiput grayish pollinose. Hairs and bristles yellowish white; on frons and ocellar tubercle brown. Antennal segments 1-2 black, 3 and style reddish; hairs yellowish with brown base; segments 21-13-45-23, sensory area 15, in length (fig. 80).

Mesonotum black; thinly grayish pollinose. Anterior central hairs black and as long as antennae 1, much longer posteriorly; otherwise yellowish white, short, sparse, and erect on intermediate areas. Bristles yellowish white; 4 weak humeral; 2 posthumeral; 4 presutural; 8 supraalar; 7 postalar; dorsocentrals black, 8 posterior, 2-3 anterior. Pleura and coxae black; grayish pollinose; hairs and bristles yellowish white. Scutellum black; grayish pollinose; 6 yellowish marginal bristles.

Dorsal half of abdominal tergites 2-6 reddish, sides and anterior margin of 2 black; thinly gray pollinose. Hairs short, yellowish white; sparse, longer, and erect on sides of 1-3; 7 white lateral bristles on 1. Sternites 2-7 reddish; hairs yellowish white, long erect on 1-5. Genitalia black; hairs on upper forceps brown, on proctiger and hypandrium yellowish; dense, golden on apices of the hypandrium (figs. 81, 82, 83).

Legs yellowish red; dorsal and anterior sides of basal 3/4 on fore, an anterior streak on basal 3/4 of middle, and hind femora except apical fourth and a narrow ventral streak, black; and extreme tip of hind tibiae brownish. Hairs and bristles yellowish; claws black, base reddish; pulvilli yellowish white; empodia pale reddish.

Wings pale brown; basal, anal, and axillary cells and axillary lobe white. Veins brown; anterior crossvein at 28/53 length of discal cell; posterior cell 1 open subequal to and 4 open 1 1/2 times length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 23 mm. Mystax yellowish; narrow base of antennal segment 3 and style reddish. Pollen of thorax brown; 10 scutellar bristles. Sides of abdominal tergites 1-5 densely and 6 thinly grayish pollinose; narrow sides of

6 and all of 7-8 bare of pollen; apical spines reddish brown. Ventral reddish streak broad and extending on posterior side on about apical half of hind femora; tibiae and tarsi all yellowish red. Wings uniformly pale brown; anterior crossvein at 42/72 length of discal cell.

DISTRIBUTION. CALIFORNIA: Monterey County: Bixby Canyon, 22, 29 July 1948, 10 August 1949, CSCSF; Cone Mountain, 3000', 10 August 1962 (E. I. Schlinger) UCR; Junipero Sierra Peak, Santa Lucia Mountains, on peak 5800', 11 August 1936 (Hugh B. Leech) CAS; Lockwood (see above); Paraiso Springs, 2 September 1934 (L. S. Slevin) CAS. The type locality is on the inland side of the Santa Lucia Mountains in southern Monterey County.

Several females were identified as belonging to this species; these are from Los Angeles, San Luis Obispo, and Tuolumne counties but their placement here is questioned until males can be found.

Stenopogon englandi Wilcox, new species.
(Figures 84-87.)

MALE. Length 21 mm. Head black; face and frons golden, occiput grayish pollinose. Mystax yellowish with 5-6 fine brownish hairs laterally; hairs on frons and ocellar tubercle brown; otherwise yellowish. Antennae black; hairs golden with brownish base; segments 29-19-65-34, sensory area 15, in length (fig. 84).

Mesonotum black, brownish pollinose. Anterior central hairs black and subequal in length to antennae 1, longer posteriorly; short, sparse, black on posterior intermediate area; yellowish otherwise. Bristles yellowish; 8 short humeral; 6 posthumeral; 4 presutural; 9 supraalar; 7 postalar; 9 posterior, 3-4 anterior dorsocentrals brownish basally. Pleura and coxae black; brownish pollinose; hairs and bristles yellowish. Scutellum black; brownish pollinose; 8 yellowish marginal bristles.

Abdomen shining yellowish red; tergites 1 and 8, sides of 2-7 and narrow anterior margin of 2, black; indistinctly grayish pollinose laterally and on anterior margins. Hairs yellowish, long erect on sides of 1-2, becoming shorter recumbent apically; about 10 yellowish lateral bristles on 1. Sternites yellowish red, 1 and narrow sides of 2-8 black; yellowish hairs sparse and erect on 1-4, shorter posteriorly except for about 10 long bristle-like ones on 8. Genitalia black; hairs on upper forceps brownish black, golden basally on remainder, orange and quite dense on apices of hypandrium (figs. 85, 86, 87).

Legs yellowish red; broad basal dorsal half of fore, narrow basal dorsal half of middle, and basal 2/3 of hind femora black; about apical 1/5 of hind tibiae brown. Hairs and bristles yellowish to golden. Claws black, base reddish; pulvilli dull yellowish; empodia reddish.

Halteres yellowish. Wings hyaline; basal, anal, and axillary cells and lobe white. Veins light brown; anterior

crossvein at 40/71 length of discal cell; posterior cell 1 open about half its length and 4 open about 1 1/2 times length of anterior crossvein.

FEMALE. Length 25 mm. Posterior hairs on antennae black, anterior ones golden. Posterior intermediate hairs on mesonotum golden and dorsocentral bristles black. Abdominal color dull, tergites 2-6 largely grayish pollinose, 7-8 bare and indistinctly reddish dorsally; sternites similar to those in male, 7-8 mostly black; apical spines black. Hind tibiae all yellowish red. Wings with a grayish tinge, basal cell 1 hyaline and costal cell yellowish; veins brown, lighter anteriorly; anterior crossvein at 39/68 length of discal cell; posterior cell 1 open slightly less and 4 open slightly more than length of anterior crossvein.

HOLOTYPE. Male, California, Orange County, Silverado Canyon, 23 July 1941 (J. Wilcox) CAS.

ALLOTYPE. Female, same data.

PARATYPES. 2 females, same data as types, JW. CALIFORNIA: Los Angeles County: 1 male, (Coquillett) 10-11, USNM. Riverside County: 5 males, 1 female, Riverside (A. R. Hardy) JW; 1 male, 7 miles N. of Temecula, 19 October 1960 (J. Powell) CIS. San Bernardino County: 1 male, East Highlands, 5 October 1957 (E. M. and R. H. Painter) RHP; 1 male, Mill Creek Canyon, 23 September 1923 (E. P. Van Duzee) CAS. San Diego County: 1 male, vicinity of Alpine, 16 July 1955 (Paul H. Arnaud, Jr.) JW; 1 female, Campo, 10 August 1935 (Jack Beamer) USNM; 1 female, Dulzura, 9 August 1935 (Jean Russell) USNM; 1 male, 1 female, 5 miles W. of Julian, 1 August 1967 (Eric Fisher) EF; 4 males, Palomar Mountain, 13 July 1941 (Max H. England, J. Wilcox) JW; 1 female, 1 mile SE. of Crestline Picnic Area, 5300', 21 July 1965 (B. Ruge) EF; 2 males, 3 miles E. of Ramona, 1 August 1967 (Eric Fisher) EF; 2 males, 1 female, Rincon Springs, 27 July (J. Wilcox) JW; 1 male, San Vicente Lake, 9 July 1962 (R. X. Schick) LACM; 1 male, Tenaja Public Camp, 2100', 21 July 1965 (R. E. Somerby, B. Ruge) EF; 1 male, Lake Wohlford, 6 September 1958 (P. Rude) CIS.

Named in honor of my late friend, Max H. England, who took me to Palomar Mountain for the first time and helped to collect these and other Asilidae.

The male specimen from East Highlands (RHP) has the wings brownish with no white areas at the base, otherwise it agrees with the other specimens.

Stenopogon gratus Loew.
(Figures 88-91.)

Stenopogon univittatus Loew, 1872, Berlin. Ent. Ztschr., vol. 16, p. 69 (Cent. 10, no. 29). Type, female, California (H. Edwards) MCZ.

Stenopogon gratus Loew, 1872, Berlin. Ent. Ztschr., vol. 16, p. 69 (Cent. 10, no. 31). Type, male, California (H. Edwards) MCZ.

Stenopogon gratus Osten Sacken, 1878, Smithsonian Misc. Coll.

no. 270, p. 67. He says that Loew (1874, Berlin. Ent. Ztschr., vol. 18, p. 183) suggested this synonymny.
Stenopogon gratus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 193. Description of male and female.
Stenopogon gratus Adisoemarto, 1967, Quaestiones Entomol., vol. 3, p. 21, figs. 204-207 (male genitalia). Brief description; California.

Length 15-25 mm. Mystax and hairs of head orange to yellowish, on frons and ocellar tubercle, brown to black. Face yellowish white pollinose. Antennae black, basal fourth of segment 3 reddish; hairs brown to reddish; segments 23-15-48-30, sensory area 20, in length (fig. 88).

Mesonotum black, brownish pollinose, divided central stripe black. Hairs black, anterior central as long as antennae 1-2, shorter on intermediate areas; longer reddish brown on humeri and lateral margins. Bristles reddish; 5-6 weak humeral; 4 posthumeral; 4 presutural; 15 supraalar; 7 postalar; dorsocentrals black, 9 posterior, 5-6 anterior. Pleura and coxae black; brownish pollinose; hairs and bristles reddish. Scutellum black; golden brown pollinose; 10 marginal bristles brown to black.

Dorsal third of abdominal tergites 2-7 red, black laterally; yellowish gray pollinose; hairs and bristles reddish. Sternites 2-7 red; hairs yellowish red. Genitalia black; hairs brownish black, at apices of hypandrium long, orange (figs. 89, 90, 91).

Fore and hind femora black, reddish apically; posterior and ventral sides of middle femora reddish. Apical half of hind tibiae and tips of fore and middle ones black. Segments of hind tarsi blackish apically. Hairs and bristles yellowish red; pulvilli yellowish; empodia reddish.

Wings brown, male anal and axillary cells and axillary lobe, and sometimes the basal cells white. Veins brown; anterior crossvein at 26/58 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell very narrowly open.

The hairs and bristles of the females tend to be yellowish or yellowish white and the wings are uniformly brown.

DISTRIBUTION. CALIFORNIA: Alameda, Lake, Monterey, San Francisco and San Mateo counties; July to October.

In a series of specimens from San Francisco, 9 October 1911 (J. A. Kusche) CAS, the mystax varies from orange to white; the tuft of hairs on the apices of the hypandrium vary from orange to white; and two specimens have mostly brown bristles on the hind legs. Some specimens have the abdomen more extensively reddish and others have much less than described. There is usually a reddish spot at the base of the fore femora and in some specimens the venter and/or the posterior side may be largely reddish.

Stenopogon kirkwoodi Wilcox, new species.
(Figures 92-95.)

MALE. Length 21 mm. Head black; face and occiput

grayish white, frons brownish pollinose. Hairs and bristles yellow; on frons and ocellar tubercle black, some with yellowish tips. Antennae black; hairs black with yellowish tips, above on 2 yellowish; segments 19-16-62-24, sensory area 15, in length (fig. 92).

Mesonotum subshining black, posterior intermediate areas brown pollinose. Central anterior hairs black becoming yellowish near pronotum, subequal in length to antennae 1, longer black posteriorly; others short, sparse, yellowish, longer on margins. Bristles yellowish; 5-6 weak humeral; 4 posthumeral; 4 presutural; 9-10 supraalar; 7 postalar; dorsocentral slender with brown base, 3-4 anterior ones. Pleura and coxae black; gray pollinose, somewhat brownish on mesopleura; hairs and bristles yellowish. Scutellum black, 6 yellowish marginal bristles and a few hairs.

Abdomen shining reddish; sides of 1-6, anterior margin of 2, and all of 7-8, black; sides of 1-7 and anterior margins of 3-6, grayish pollinose. Hairs yellow, long erect on sides of 1-3, short recumbent otherwise; 15 short yellowish lateral bristles on 1. Sternites shining reddish; narrow sides of 2-6, all of 1 and 7-8, black; hairs erect yellow, long and quite dense on 1-4, shorter and less numerous apically. Genitalia black; hairs yellowish, a few longer brown apically on upper forceps and dense short orange on apices of hypandrium; proctiger extending well beyond apex of upper forceps and arms of hypandrium longer than upper forceps (figs. 93, 94, 95).

Legs yellowish red; dorsal basal half extending on anterior side to basal 3/4 of fore femora, a narrow anterior streak on basal half of middle femora, about basal 3/4 of hind femora, and apical fifth of hind tibiae, black. Hairs yellowish; bristles yellowish to orange. Claws black, base reddish; pulvilli dull yellowish; empodia reddish.

Halteres yellowish white, lower stem brown. Wings evenly light brown; veins brown; anterior crossvein at 26/59 length of discal cell; posterior cell 1 open slightly less than and 4 subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Hairs on frons, ocellar tubercle, and antennae black. Mesonotum golden brown pollinose; divided central stripe black; central hairs and dorsocentral bristles all black. Sternite 3 with a posterior and 4 with a central anterior spot black; 7 narrowly reddish at middle; apical spines reddish brown. Wings with the brown concentrated along the veins, center of the cells hyaline.

HOLOTYPE. Male, California, Santa Barbara County, Figueroa Mountain, 26 August 1967 (Carl W. Kirkwood) CAS.

ALLOTYPE. Female, same data, 12 August 1967, CAS.

PARATYPES. 3 males, same data as holotype; 5 females, same data, 7 July 1965, 1966, 12, 26 August 1967; JW.

The female paratypes have the wings uniformly light brown. One specimen has a small leafhopper impaled on its beak.

Named in honor of Carl W. Kirkwood, Summerland, California, who collected numerous Asilidae for me in Arizona and California.

INQUINATUS GROUP

Face short and quite broad below, gibbosity in lateral view extending about 3/4 distance from oral margin to the antennae (male, 50/65; female, 45/65), face below antennae with a shining inverted V which is subshining on the gibbosity from an anterior view. Occipital bristles strong, short, and slightly curved forward. Hairs anteriorly on the mesonotum very short recumbent; no anterior dorsocentral bristles and 7-8 weak posterior ones; mesopleura with a few weak short fine crinkly hairs in addition to the clump of crinkly hairs above on the sternopleura. Coxae with strong bristles and fore and middle femora below with numerous short strong bristles. Hypandrium of the male genitalia undivided apically. Wings with posterior cells 1 and 4 open. Back (1909) said that posterior cells 1 and 4 were open and closed; a check of 100 specimens showed only one with posterior cell 4 closed at the wing margin.

Stenopogon inquinatus Loew is the only Nearctic species in this group. A number of the Palearctic species could be grouped with S. inquinatus, especially those with posterior cell 1 open and posterior cell 4 open or closed.

Stenopogon inquinatus Loew.
(Figures 96-99.)

Stenopogon modestus Loew, 1866, Berlin. Ent. Ztschr., vol.10, p. 26 (Cent. 7, no. 46). Type, female, North Red River (Kennicot) MCZ.

Stenopogon inquinatus Loew, 1866, Berlin. Ent. Ztschr., vol. 10, p. 27 (Cent. 7, no. 47). Types, male and female, Nebraska (Heyden) MCZ.

Stenopogon morosus Loew, 1874, Berlin. Ent. Ztschr., vol. 18, p. 356. Types, male and female, Red River of the North, Minnesota, MCZ.

Stenopogon inquinatus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 198, pl. III, fig. 2. Description; reports from Nebraska and British Columbia.

Stenopogon morosus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 199. Translation of original description; reports from Washington.

Stenopogon modestus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 200, pl. III, fig. 4. Translation of original description.

Stenopogon modestus Brown, 1929, Trans. Amer. Entomol. Soc. vol. 54, p. 302, pl. 29, figs. 16-19 (male and female genitalia), description.

Stenopogon inquinatus Bromley, 1931, Annals Entomol. Soc. Amer., vol. 24, p. 428. In key lists S. modestus and S. morosus as synonymns of S. inquinatus.

Stenopogon inquinatus Bromley, 1937, Jour. New York Entomol. Soc. vol. 45, p. 297. Notes several variations and considers S. inquinatus, S. morosus, and S. modestus as one variable species; in key lists from Western United States.

Stenopogon inquinatus Adisoemarto, 1967, Quaqestiones Entomol., vol. 3, p. 21, figs. 13-15 (head), 89-91 (female abdomen), 126 (antennae), 208-212 (male genitalia). Description and notes on variations; range from British Columbia to Minnesota and south to Arizona.

Bromley (1931) gave no reason for selecting the name "inquinatus" over "modestus." Possibly it was because Back (1909) listed "inquinatus" first.

Length 20-37 mm. This large heavy-bodied fly is extremely varied. Head and thorax black, humeri red. Abdomen all black, varying from specimens with only the narrow posterior margins reddish, to those with the broad dorsum and venter of all segments yellowish red with the lateral margins of the tergites black. Male terminalia usually reddish but sometimes partly brown (figs. 97, 98, 99). Femora black, only the apices reddish, varying to specimens with only the dorsum reddish; tibiae and tarsi reddish. Wings hyaline to dilute brown which in some females is intensified along the veins; in some males they are dilute milky white.

Head (except frons), pleura, and abdomen, grayish yellow pollinose; frons and mesonotum brown; rather dense on head and pleura, thin on mesonotum and very thin or absent on dorsum of abdominal tergites.

Hairs and bristles vary from all yellowish white (except the short golden anterior mesonotals), to specimens with the hairs on the frons, ocellar tubercle, and antennae, and the bristles on the legs largely black. A few males have the mystax about half black, the beard largely brown; hairs on the mesonotum, abdomen and legs largely black, and the mesonotal bristles about half black.

The antennal segments measure, 25-20-60-33, sensory area 20, in length (fig. 96).

DISTRIBUTION. CANADA: Alberta, British Columbia, Manitoba, and Saskatchewan. USA: Arizona, California, Colorado, Idaho, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

JUBATUS GROUP

Mystax usually all black, sometimes the lower half white or yellowish, composed of slender bristles covering the gibbosity which is strong and extends about 5/6 distance from the oral margin to the antennae. Upper occipital bristles slender and curved forward at a right angle. Second segment of the palpi slender and about four times as long as broad. Thorax and abdomen black in ground color; central mesonotal hairs long and dense. Coxae clothed mainly with hairs, sometimes a few bristles intermixed. Wings brown, basal third white in most of the males and in two species of females.

Key To The Species (Males)

1. Posterior side of the fore and middle femora largely reddish 2
   Femora black, the tips reddish 3

2. Beard black; abdomen thinly brownish pollinose, the margins yellowish or gray; second submarginal cell without basal stump vein; female mystax yellowish, abdomen golden brown pollinose without bare spots; length 14-19 mm. (California) . . . . . S. melanderi Wilcox, new species
   Beard white; abdomen yellowish gray pollinose; second submarginal cell usually with a short stump vein basally; female mystax largely black, abdomen grayish pollinose with small lateral bare spots on tergites 2-7; length 15-18 mm. (California). S. neojubatus Wilcox and Martin

3. Beard black or brown 4
   Beard white, yellowish, or reddish 6

4. Abdominal hairs white; basal, anal, and axillary cells of both sexes white; hairs and bristles of the legs black; length 17-25 mm. (California, Nevada). . . . . S. cazieri Brookman
   Abdominal hairs black; only male wings white basally 5

5. Hind legs nearly all black or brown; wings uniformly light brown in male; arms of the hypandrium as long as or longer than the upper forceps with long black hairs apically; length 21-24 mm. (California). . . . . S. pinyonae Wilcox, new species
   Tips of hind femora and basal half of hind tibiae reddish; male wings white basally, female wings uniformly brown; arms of hypandrium shorter than upper forceps with short reddish hairs apically; length 21-24 mm. (California) . . . . . S. macswaini Wilcox, new species

6. Beard white 7
   Beard yellow or orange 8

7. Antennal segment 3 one and one-half times length of 1-2, style about 1/5 length of 3; hind tarsi reddish; hypandrium with long golden hairs on inner side of arms; wings of both sexes white basally; length 21-22 mm. (California). .S. jubatoides Bromley
   Antennal segment 3 subequal in length

to 1-2, style about half the length of 3; hind tarsi largely black; arms of hypandrium with short orange hairs at apices; male wings white basally, female wings uniformly brown; length 20-22 mm. (California, Baja California del Norte, Arizona?) . . . . S. jubatus (Coquillett)

8. Beard, hairs, and bristles of thorax, abdomen, and legs largely orange; fore and middle tibiae and tarsi all reddish; arms of the hypandrium with very short orange hairs at apex; length 20-22. (California) . .S. bromleyi Wilcox, new species

Beard, hairs and bristles of thorax, abdomen and legs largely, yellowish 9

9. Fore and middle tibiae and tarsi all reddish; mystax of both sexes black, sometimes a few whitish hairs below; upper forceps about 1 1/2 times length of hypandrium and slender apically, hypandrium with sparse long yellowish hairs at apices; length 19-23 mm. (Baja California del Norte) . . . . . S. hamus Martin

Apical 2/5 of fore and middle tibiae black; lower half of male mystax usually yellowish, female mystax all black; upper forceps longer than hypandrium and slightly narrowed at apex, hypandrium with dense short orange hairs at apices; length 18-20 mm. (Baja California del Norte) . . S. stonei Bromley

Stenopogon bromleyi Wilcox, new species. (Figures 128-131.)

MALE. Length 21 mm. Head black; face densely and frons thinly white, occiput grayish pollinose. Mystax, hairs on frons and ocellar tubercle, and upper occipitals, black; otherwise orange, on palpi yellowish. Antennae black; hairs black; segments 26-18-59-24, sensory area 20, in length (fig. 128).

Mesonotum black, grayish pollinose. Anterior central hairs dense black and as long as antennae 1-2, longer posteriorly; shorter, erect, and black on intermediate areas; laterally and on humeri orange. Bristles orange; 1-2 posthumeral; 3-4 presutural; 5 supraalar; 5-6 postalar; dorsocentrals slender black, 5-6 anterior. Pleura and coxae black; grayish pollinose; hairs yellow. Scutellum black; grayish pollinose; 10 black marginal bristles and several long black hairs.

Abdomen shining black; tergite 1 and narrow anterior and posterior margins of remainder, grayish pollinose. Hairs

orange, long on sides of 1-3, shorter erect on remainder; about 10 orange lateral bristles on 1. Sternites shining black; hairs long erect orange becoming somewhat shorter apically and brownish on 7-8. Genitalia black, proctiger brown; hairs basally on upper forceps black, yellow apically and on proctiger; brownish basally on hypandrium becoming orange apically (figs. 129, 130, 131).

Basal 4/5 of femora and apical fourth of hind tibiae, black; remainder orange with orange hairs and bristles. Claws black, base reddish; pulvilli yellowish; empodia reddish.

Halteres yellowish brown. Wings light brown; anal and axillary cells and axillary lobe largely white. Veins brown; anterior crossvein at 26/64 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Pollen of face with a golden tinge. Mesonotal pollen brownish gray; divided central stripe black. Pleural and coxal hairs orange. Tergites 2-6 thinly grayish brown pollinose, sides of 4-6 widening apically and all of 7-8 bare of pollen; sternites shining black; apical spines reddish brown. Wings uniformly light brown; anterior crossvein at 38/70 length of discal cell.

HOLOTYPE. Male, Ventura County, California, 8 May 1940 (R. M. Bohart) USNM.

ALLOTYPE. Female, Ventura County, Frazier Park, 18 May 1940 (R. M. Bohart) USNM.

PARATYPES. CALIFORNIA: Alameda County: female, Berkeley, 10 September 1930 (M) USNM. Kern County: 2 females, Walker Pass, 26 June 1949 (L. W. Isaak) CAS, USNM. Los Angeles County: 1 male, 8 females, Beverley Glen Canyon, 4, 20 May, 4 July 1962 (Eric Fisher) EF; 1 female, Sepulveda Canyon, Santa Monica Mountains, 18 May 1962 (Eric Fisher) EF. Ventura County: 2 males, 1 female, same data as holotype, CAS, USNM; 1 female, same data as allotype, USNM.

The species is named in honor of the late Stanley W. Bromley who did so much work on this group and on other Asilidae.

It is quite close to S. rufibarboides Bromley and could prove to be a variation of that species.

Stenopogon cazieri Brookman.
(Figures 100-103.)

Stenopogon cazieri Brookman, 1941, Pan-Pacific Entomol., vol. 17, p. 78. Types, male and female, 10 miles SE. of Livermore, Alameda County, California, May 10, 1940 (M. A. Cazier, A. E. Michelbacher) CAS. Paratypes: same data and May 2, 12, 1940 (B. Brookman, C. D. Michener); summit Mt. Hamilton, Santa Clara County, California, May 19, 1940 (W. C. Reeves, M. A. Cazier).

MALE. Length 21 mm. Head black; face yellowish gray, frons brown, occiput gray pollinose. Hairs and bristles

black, beard brown (in some a mixture of black and white hairs). Antennae black; hairs black; segments 28-18-58-28, sensory area 26, in length (fig. 100).

Mesonotum black, brownish golden pollinose, divided central stripe black. Hairs black, anterior central hairs erect and as long as antennae 1-2; a few yellowish hairs laterally and on humeri. Bristles black; 6 weak humeral; 4 weak posthumeral; 4 presutural; 5-6 supraalar; 5-6 postalar; dorsocentrals slender, 7 posterior, 3 anterior. Pleura and coxae black; brownish pollinose; coxal bristles black with yellowish hairs intermixed, 3 black bristles and numerous white hairs on hind ones; sternopleural hairs yellowish. Scutellum black; brownish pollinose; 12 black marginal bristles.

Abdomen shining black; narrow posterior and lateral margins of 2-6 and anterior margins of 2-5, grayish pollinose. Hairs short, white, longer on sides of 1-3, a few long black dorsally on 1; 5-6 yellowish lateral bristles on 1. Sternites shining black, posterior margins of 2-4 brownish; hairs erect white gradually becoming shorter apically. Genitalia shining black; hairs on upper forceps and base of hypandrium black; a rather long brush of yellowish hairs on inner apical arms of the hypandrium (figs. 101, 102, 103).

Femora black, apical fifth reddish; tibiae black, basal 2/5 reddish; tarsi red, apices of hind ones black. Hairs and bristles black, a few yellowish dorsally and posteriorly on the femora. Claws black, base reddish; pulvilli yellowish; empodia reddish.

Halteres dark brown. Wings brown; basal, anal, and axillary cells and axillary lobe, white. Veins brown; anterior crossvein at 34/67 length of discal cell; posterior cell 1 open subequal to and 4 open about 1/2 length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 24 mm. Beard and hairs below on proboscis white in a few specimens. Hairs on coxae mostly white with brownish base. Apical spines on abdomen black. About 8 strong bristles below on fore femora (numerous long hairs in male). Wings white basally, brown apically but somewhat lighter within the cells; anterior crossvein at 42/68 length of discal cell; posterior cell 4 closed at wing margin.

DISTRIBUTION. CALIFORNIA: Alameda County (see above). Contra Costa County: Mt. Diablo, 5 June 1940, (T. G. H. Aitken) CAS. San Benito County: Pinnacles, 13 June 1964 (D. C. and K. A. Rentz) CAS. Santa Barbara County: Bluff Camp, San Rafael Mountains, 29 June 1959 (A. S. Menke) UCD; Figueroa Mountain, 6, 16 June 1965 (Carl W. Kirkwood) JW, 21 June 1959 (R. M. Bohart) UCD; 6 miles W. of Pine Mountain summit, 12 June 1962 (J. C. Hall) UCR; Sunset Valley, 26, 27 June, 14 July 1940 (W. C. Reeves, M. A. Cazier, K. S. Hagen) CAS (mentioned by Brookman but not included in type series). Santa Clara County: Mt. Hamilton, 17 June 1963 (G. I. Stage) moth prey, CAS; Colo Creek and Mines Road, 13 June 1950 (J. E. Gillaspy) AMNH. Ventura County: Chuchupate Park, 24 June 1956 (W. E. Simonds) CDA. NEVADA: Washoe County: Reno, 2 June 1940 (LaR) USNM.

Stenopogon hamus Martin.
(Figures 104-107.)

Stenopogon hamus Martin, 1968a, Proc. Calif. Acad. Sci., vol. 35, p. 385, fig. 1. Type, male, Baja California, Sierra San Pedro Martir, La Grulla, 7000', 12 June 1953 (P. H. Arnaud, Jr.) CAS; female, same area, Rancho Viejo, 7000', 14 June 1953 (P. H. Arnaud, Jr.) CAS. Paratypes, same data.

Length 19-23 mm. Mystax, hairs on frons and ocellar tubercle, upper occipitals, black; otherwise yellowish. Antennae black; hairs black; segments 25-15-57-23, sensory area 21, in length (fig. 104). Lateral mesonotal and scutellar bristles, hairs on coxae and sternopleura, yellowish white; anterior central mesonotal hairs dense erect black as long as antennae 1-2, longer posteriorly. Abdominal hairs and bristles yellowish white; hairs on upper forceps black, on hypandrium yellowish; upper forceps in lateral view slender and about 1 1/2 times length of hypandrium (figs. 105, 106, 107). Femora black, about apical 1/6 reddish; tibiae and tarsi reddish (apical half of hind tibiae black in two specimens); hairs yellowish; bristles reddish to yellowish. Anterior crossvein at 34/66 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein.

DISTRIBUTION. Mexico, Baja California del Norte, see above; Sierra Juarez, vicinity of La Milla, 4 miles NE. of Rancho El Topo, 11 May 1968 (E. M. Fisher) EF; Sierra San Pedro Martir, trail La Grulla to La Encantada, 13 June 1953 (P. H. Arnaud, Jr.) CAS; Sierra San Pedro Martir, La Grulla, 6900', 15 June 1953 (P. H. Arnaud, Jr.) CAS.

Stenopogon jubatoides Bromley.
(Figures 108-111.)

Stenopogon jubatoides Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 297. Types, male and female, Mt. Diablo, California, July 21, 1935 (Jack Beamer) UK. Paratopotype, same data.

MALE. Length 21 mm. Head black; face yellowish white becoming golden below antennae, frons brown, occiput gray pollinose. Mystax and hairs on frons and ocellar tubercle, black; otherwise white. Antennae black; hairs black; segments 32-18-75-15, sensory area 55, in length (fig. 108).

Mesonotum black; golden brown pollinose, divided central stripe black. Anterior central hairs erect, black, and as long as antennae 1-2, longer posteriorly; on intermediate area shorter, mixed black and yellowish; on humeri and lateral margins white. Bristles yellowish white; 1-2 posthumeral; 3 presutural; 6 supraalar (partly black); 6 postalar; dorsocentrals black, 7 posterior, 5 anterior. Pleura and coxae black; brownish pollinose; hairs white. Scutellum black; brownish pollinose; 12 marginal bristles, black basally,

yellowish apically.

Abdomen shining black, all margins grayish pollinose. Hairs yellowish white, long on sides of 1-3; 6 yellowish lateral bristles on 1. Sternites black, posterior margins of 2-6 reddish at middle; thinly gray pollinose; hairs erect white gradually becoming shorter apically. Genitalia shining black; hairs on upper forceps brown to golden, on hypandrium golden with dense brush on inner apical side of arms (figs. 109, 110, 111).

Femora black, apical sixth reddish; tibiae black, about basal fourth reddish; tarsi reddish with indications of brown on apices of hind ones. Hairs yellowish white; bristles yellowish red, about 7 slender ones below on the fore femora mostly black. Claws black, base reddish; pulvilli yellowish; empodia reddish.

Halteres brown. Wings light brown; basal, anal, and axillary cells and axillary lobe, white. Veins brown; anterior crossvein at 31/61 length of discal cell; posterior cell 1 open slightly less than and 4 open slightly more than length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Face mostly golden brown pollinose; upper occipital hairs yellowish. Apical spines on abdomen reddish brown. Bristles on hind tibiae and tarsi part brown; stouter yellowish below on fore femora. Wings white basally; anterior crossvein at 35/62 length of discal cell.

DISTRIBUTION. CALIFORNIA: Contra Costa County: Mt. Diablo (East Slope, Laurell Dell, Mitchell Canyon, Rock City, Russelman Park, Silver Spur) May to July (Jack and R. H. Beamer, B. Brookman, M. Cazier, R. L. Langston, E. G. Linsley, A. T. McClay, J. Powell, E. S. Ross, E. C. Van Dyke) CAS, CIS, UK. Napa County: 2 miles N. of Knoxville, 9 June 1969 (E. E. Grissell) large Ichneuman prey, UCD; Samuel Springs, 5 to 30 May 1955 (R. C. Bechtel, R. M. Bohart, H. R. Moffitt, E. I. Schlinger) UCD. Solano County: Mix Canyon, 23 May 1955 (R. D. Browning) UCD.

Specimens from Napa County have the leg bristles from brown to black.

PREY. Stink bug and tree hoppers.

See note under S. diablae, new species.

Stenopogon jubatus (Coquillett).
(Figures 112-115.)

Scleropogon jubatus Coquillett in Baker, C. F., 1904, Invertebrata Pacifica, vol. 1, p. 38. Type, male, Claremont, Los Angeles County, California, USNM.

Stenopogon jubatus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 195. Description of male from Claremont, California, loaned to him by Coquillett.

Stenopogon nigriverticellus Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 298. Type, female, San Diego, California, July 7, 1929 (L. D. Anderson) UK. Paratopotype, female, same data, JW (labeled San Diego County not San Diego). New synonymy.

MALE. Length 20 mm. Head black; face white, frons and occiput gray pollinose. Mystax, hairs on frons, ocellar tubercle, and upper occiput, black; otherwise white. Antennae black, apex of segment 2 and base of 3 narrowly yellowish; hairs black, yellowish above on 2 and partly on 1; segments 31-15-48-25, sensory area 15, in length (fig. 112).

Mesonotum black, grayish brown pollinose, divided central stripe black. Anterior central hairs erect, black, and as long as antennae 1-2, longer posteriorly; hairs otherwise mostly yellowish. Bristles yellowish; 4 posthumeral; 3-4 presutural; 6 supraalar; 6-7 postalar; dorsocentrals slender black, 8 posterior, 4 anterior. Pleura and coxae black; grayish golden pollinose; hairs white. Scutellum black; brownish pollinose; 10 black marginal bristles.

Abdomen shining black, posterior margins of 2-5 brownish; all margins grayish pollinose. Hairs white, longer on sides of 1-3; 6 yellowish lateral bristles on 1. Sternites shining black, posterior margins 2-5 brownish; hairs erect white. Genitalia black; hairs yellowish, short dense orange at apices of hypandrium (fig. 113, 114, 115).

Femora black, apical fifth of fore and middle and ventral apical sixth of hind ones reddish. Tibiae yellowish red, apical 2/5 of fore and middle and apical 3/4 of hind ones black. Hind tarsi black, fore and middle ones yellowish red with blackish apices. Hairs white; bristles yellowish, 5 white below on fore femora. Claws black, base reddish; pulvilli and empodia yellowish red.

Halteres brown. Wings light brown; basal, anal, and axillary cells mostly, and axillary lobe, white. Veins brown; anterior crossvein at 25/57 length of discal cell; posterior cell 1 open subequal to, and 4 open a little more than length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 20 mm. Tergites 1-6 thinly grayish pollinose, sides of 6 and all of 7-8 bare; sternites similar; apical spines reddish brown. Wings uniformly brown; anterior crossvein at 34/67 length of discal cell.

DISTRIBUTION. ARIZONA: Cochise County: Chiricahua Mountains, Flys Peak, 6000-9000', July 1927 (J. A. Kusche) CAS, a female with black mystax which may not belong here. CALIFORNIA: Los Angeles, Riverside, San Bernardino, and San Diego counties; May to July. MEXICO: Baja California del Norte, 3 and 21 miles SW. of Rumorosa, 13 May, 1 June 1958 (E. L. Sleeper) CSCLB; Sierra Juarez, 13.5 miles S. of El Rayo, 8 June 1970 (E. L. Sleeper) CSCLB.

PREY. Three winged ants; bibionid fly.

Stenopogon nigroverticellus Bromley was described in part as follows: "A black species related to jubatus Coq., differing in having the mystax, except the upper portion, yellow." The mystax is usually all black, but in southern San Diego County and in Baja California it is partly whitish or yellowish. Specimens from eastern San Diego County now available are listed below with the localities arranged from north to south. Oak Grove (2728'), 1 June 1941, 22 June 1966 (Dan F., Guy F., and Thelma Toland, John and J. Wilcox) pair, 3 males, 23 females, mystax all black, JW; Warners (Springs, 3132'), June 1921, male and female, mystax all black, SDNHM; Laguna

(Mountains, 5975'), 2, 18, 24 June 1926 (W. S. Wright, no. 364), 4 females, mystax all black, 1 female, lower half of mystax white, 1 male, 1 female, lower 2/3 of mystax white, SDNHM; Pine Valley (3726'), 20 May, 27 June 1927, 15-21 July 1920 (part F. W. Kelsey), 9 females, mystax all black; 2 males, 1 female, lower fourth of mystax white; 1 male, 1 female, lower half of mystax white; 3 males, 1 female, lower 2/3 of mystax white, SDNHM. The white above refers to yellowish white and many of the bristles are brownish or black at the base.

Stenopogon macswaini Wilcox, new species.
(Figures 116-119.)

MALE. Length 21 mm. Head black; face white, frons grayish gold and occiput gray pollinose. Hairs and bristles black, beard reddish brown. Antennae black; hairs black, long and dense below on 1; segments 26-13-52-23, sensory area 15, in length (fig. 116).

Mesonotum black; golden brown pollinose, divided central stripe black, intermediate area brown. Hairs black, anteriorly and on humeri erect and as long as antennal segments 1-2. Bristles: 3 posthumeral and 4 presutural black; 7 supraalar and 6 postalar, reddish brown; dorsocentrals black, 8 posterior and 5 anterior, slender and hard to separate from the long hairs. Pleura and coxae black; golden pollinose; hairs and bristles on coxae brown; hairs on sternopleura black. Scutellum black; golden pollinose; 14 slender black marginal bristles and several long black hairs.

Abdomen black; tergites 2-6 with narrow anterior, lateral, and posterior margins indistinctly gray pollinose. Hairs brownish black, dense erect on 1-4 becoming shorter and recumbent apically; about 8 slender brownish black lateral bristles on 1. Sternites black; hairs long erect black gradually becoming shorter apically. Genitalia black; hairs black, arms of hypandrium at apex with dense short reddish hairs (figs. 117, 118, 119).

Femora black, apical fourth reddish; tibiae reddish, apical half of hind and tips of fore and middle ones, black; hind tarsi brownish, others reddish. Hairs black; bristles black to brownish; claws black, base reddish; pulvilli light brown; empodia reddish.

Halteres light brown, base darker. Wings brown; basal, anal, and axillary cells and axillary lobe, largely white. Veins brown; anterior crossvein at 31/66 length of discal cell; posterior cell 1 open subequal to, and 4 open about half the length of the anterior crossvein; anal cell closed at wing margin.

FEMALE. Length 22 mm. Lower occipitals, hairs on proboscis and beard reddish. Lateral hairs and bristles on mesonotum reddish. Hairs and bristles on pleura and coxae reddish. Abdominal tergites 2-6 thinly golden pollinose; sides of 5 narrowly, 6 broadly, and all of 7-8 bare of pollen; hairs yellowish red, longer on sides of 1-3; 5-6 weak reddish lateral bristles on 1; apical spines red. Tip of hind tibiae

black; tarsi all reddish; hairs and bristles reddish. Wings brown; anterior crossvein at 35/71 length of discal cell; posterior cell 4 open about 1 1/2 times length of anterior crossvein.

HOLOTYPE. Male, Tanbark Flat, Los Angeles County, California, 21 June 1950 (J. W. MacSwain) CIS.

ALLOTYPE. Female, same data.

PARATYPES. CALIFORNIA: Los Angeles County: type locality, 1 male, 1 female, 20 June 1952 (M. Cazier, W. Gertsch, R. Schrammel) AMNH; 16 males, 16 females, 18 June to 6 July 1956, 13 June to 15 July 1950, 6 to 25 June 1952 (B. Adelson, W. C. Bentinck, W. V. Garner, P. D. Hurd, J. W. MacSwain, J. J. Menn, R. Schuster, G. L. Wiley, H. N. Yokoyama) CIS; 2 males, 3 females (H. W. Michalk) CDA; 10 males, 20 females (B. Adelson, B. M. Bartosh, R. C. Bechtel, R. W. Bushing, J. C. Hall, W. O. Marshall, A. T. McClay, W. A. McDonald, S. Miyagawa, E. I. Schlinger, M. J. Stebbins, K. G. Whitesell) UCD; 3 females (L. A. Stange, A. Menke, Jr.) LACM; 1 female, Azusa, 31 May 1925 (S. W. Bromley) USNM; Camp Baldy (part San Bernardino County), 26 June to 11 July 1950, 1956, 1 male, 6 females (P. D. Hurd, J. I. Stage, J. W. Tilden, H. N. Yokoyama) CIS; 3 males, 5 females, (R. C. Bechtel, R. M. Bohart, R. W. Bushing, A. T. McClay, H. R. Moffitt, M. J. Stebbins) UCD; 1 male, (A. Menke, Jr.) LACM; 1 female, 1 July 1945 (A. L. Melander) USNM; 1 female, Crystal Lake, 29 June 1950 (B. Adelson) CIS; 1 female, East Fork, San Gabriel River, 9 July 1952 (D. E. Barcus) UCD; 1 female, Llano, 30 May 1958 (W. E. Simonds) CDA; 3 females, Pasadena, 25, 31 May 1909, 26 June 1907 (F. Grinnell, Jr.) USNM; 1 female, San Gabriel Mountains, 3000', 16 June 1909 (F. Grinnell, Jr.) USNM. San Bernardino County: 1 female, Cajon Junction, 7 June 1958 (J. C. Hall) UCD; 1 female, 4 miles NW., 4 July 1958 (E. I. Schlinger) UCD; 1 male, 2 miles W. of Cajon Pass, 7 June 1958 (J. C. Hall) UCD; 1 male, 3 females, 4 miles NE. of Wrightwood, 7 June 1966, 20 June 1968 (J. Wilcox) JW.

Named in honor of Dr. J. W. MacSwain, University of California, Berkeley, who collected numerous specimens of California Asilidae.

Stenopogon melanderi Wilcox, new species.
(Figures 120-123.)

MALE. Length 14 mm. Head black; face and occiput yellowish gray, frons brown pollinose. Hairs and bristles all brownish black. Antennae black; hairs black; segments 22-15-50-29, sensory area 10, in length (fig. 120).

Mesonotum black; brown pollinose, divided central stripe black. Hairs black; on anterior central stripe quite dense, slightly reclinate, and subequal in length to antennae 1; short and sparse otherwise; long, erect, brownish on humeri. Bristles black; 5-6 shorter humeral; 3 posthumeral; 4 presutural; 9-10 supraalar; 6 postalar; 10 posterior and 4 anterior dorsocentral. Pleura and coxae black; brownish pollinose; hairs and bristles on coxae black; sternopleural

hairs brown. Scutellum black; brownish pollinose; 9 black marginal bristles and several strong black hairs.

Abdomen black; thinly brownish pollinose becoming grayish apically, posterior margins of 2-4 densely yellowish brown pollinose. Hairs black, sparse, long on sides of 1-3; about 10 black lateral bristles on 1. Sternites similar with long sparse erect hairs on 1-4. Genitalia black; base of upper forceps, apical half of lower forceps and arms of hypandrium reddish; hairs black (figs. 121, 122, 123).

Femora black, tips reddish; venter and posterior side of fore and middle ones reddish, the black broader apically on the fore ones and a black ring at 2/3 length of middle ones. Tibiae black; about basal half of fore and middle ones and basal 2/5 of hind ones, reddish. Tarsi reddish; claws black, broad base reddish; pulvilli whitish brown; empodia brown. Hairs and bristles black.

Halteres yellow, lower stem brown. Wings dilute brown; basal, anal, and axillary cells and axillary lobe, white. Veins brown; anterior crossvein at 25/50 length of discal cell; posterior cell 1 open slightly less than, and 4 open about 1 1/2 times length of anterior crossvein.

FEMALE. Length 20 mm. Hairs and bristles of the head yellowish, on frons and ocellar tubercle black; hairs below on antennae 1, black basally and yellowish apically. Mesonotal hairs and bristles yellowish; the longer central and short intermediate hairs, and the dorsocentral bristles black. Pleural and coxal hairs and 10 scutellar bristles yellowish. Abdomen black, golden brown pollinose, segments 7-8 bare of pollen; hairs and bristles yellowish; apical spines brownish black. Hairs and bristles of legs yellowish; bristles on hind tibiae and tarsi mostly brown to black. Wings dilute black; basal, anal, and axillary cells nearly hyaline; anterior crossvein at 34/55 length of discal cell.

HOLOTYPE. Male, Morro Bay, California, 30 August 1945 (A. L. Melander) USNM.

ALLOTYPE. Female, 2 miles E. of Baywood Park, 20 September 1968 (J. Wilcox) USNM.

PARATYPES. CALIFORNIA: San Luis Obispo County: 3 females, same data as holotype, 9 August 1957, 30 August, 6 September 1945, USNM; 1 male, same locality, 14 September 1956 (J. C. Hall) UCD; 1 male, 2 females, Baywood, 15 September 1956 (J. C. Hall) UCD; 20 males, 16 females, same data as allotype and 21 September 1968, JW; 1 male, 4 miles S. of Oceano, 12 September 1956 (J. C. Hall) 1956; 1 male, 2 females, Pismo, 1 August 1930 (T. F. Winburn, R. H. Painter) RHP.

I hesitated to link the males with black hairs and bristles with females with mostly yellowish hairs and bristles until they were collected in the same area together. The specimens collected in Baywood Park were in a sparsely settled subdivided area at an elevation of about 100 feet, covered with reddish sand and rather thickly grown over with trees, shrubs, and weeds. This was about two miles east of the Baywood business area on Morro Bay, on Nipomo Avenue, near the intersections of Mountain View Avenue and Willow Drive. Most of the flies were taken in the weedy areas on

the sand or on the weeds about one foot high. More specimens were taken in the afternoon when a stiff wind was blowing than in the morning with little or no wind and bright sunshine. None were found on the low dunes one-half mile or less from the bay.

Named in honor of the late Dr. A. L. Melander who collected the first specimens of this species.

Stenopogon neojubatus Wilcox and Martin.
(Figures 124-127.)

Stenopogon neojubatus Wilcox and Martin, 1945, Bull. S. Calif. Acad. Sci., vol. 44, p. 10, figs. 2a, 2b. Types, male and female, Santa Rosa Island, California, VIII-5 and VII-8 '39, LACM. Paratypes: same data and Santa Barbara Island, California, 8 July 1939.

MALE. Length 15 mm. Head black; face white, frons light brown, occiput gray pollinose. Mystax, hairs on frons, ocellar tubercle, and upper occiput black; white otherwise. Antennae black; hairs yellowish white, partly black below on 1-2; segments 17-11-43-21, sensory area 10, in length (fig. 124).

Mesonotum black; grayish golden pollinose, divided central stripe black, intermediate area brown. Anterior central hairs black and slightly longer than antennae 1, sparse longer posteriorly; on humeri and lateral margins, white. Bristles: 2 posthumeral black; 1 black, 2 brown presutural; 5-6 supraalar, 4 postalar, black basally and brown apically; dorsocentrals black, 6 posterior and 3 anterior. Pleura and coxae black; golden gray pollinose; hairs white, several slender black bristles intermixed on fore and middle coxae. Scutellum black; golden pollinose; 10 black marginal bristles.

Abdomen shining black; broad sides and narrow anterior and posterior margins gray pollinose. Hairs white, long on sides of 1-3; about 10 black lateral bristles on 1. Sternites black (sometimes partly reddish); gray pollinose; hairs long erect sparse white on 1-4, shorter apically. Genitalia black (sometimes reddish brown especially upper forceps); hairs black on upper forceps, white otherwise, slightly golden on tips of hypandrium (figs. 125, 126, 127).

Femora black, apical fifth of fore and middle, venter posteriorly of fore, and posterior side of middle and hind ones, reddish brown; tibiae black, narrow base of all, venter of fore and middle and posterior side of hind ones, reddish brown; tarsi black, venter and apical segments of fore and middle ones, reddish. Hairs on femora yellowish white, on tibiae and tarsi brownish to reddish. Bristles mostly black, part reddish; no bristles below on fore femora. Claws black, base reddish; pulvilli reddish brown; empodia reddish.

Halteres yellowish white, base brown. Wings light brown; basal, anal, and axillary cells and axillary lobe, white. Veins black; anterior crossvein at 18/42 length of discal cell; posterior cells 1 and 4 open subequal to length of

anterior crossvein; anal cell open; a short stump vein near base of submarginal cell 2.

FEMALE. Length 17 mm. Yellowish bristles mixed in the black especially below in the mystax; hairs in part on the frons and all on the antennae, yellowish. Lateral bristles on mesonotum and on coxae, yellowish red. Abdominal tergites 1-7 densely grayish pollinose, 2-7 with lateral anterior bare spots, 8 all bare; hairs and bristles yellowish white; apical spines black. Hairs on legs all yellowish; bristles reddish, part black on hind tibiae and tarsi. Wings light brown, nearly hyaline basally; anterior crossvein at 22/45 length of discal cell; posterior cell 4 open about 1/2 length of anterior crossvein.

DISTRIBUTION. CALIFORNIA: Los Angeles County: Santa Barbara Island, 8 July 1939, LACM. Santa Barbara County: Santa Cruz Island, upper Central Valley, 8 June 1966 (J. Powell) CIS; Christi Beach, 30 April 1966, 8 May 1968, 19 June 1967 (D. S. Horning, Jr., A. S. Menke, R. O. Schuster, A. J. Slater) CIS, UCD; Christi Ranch, 14 September 1964 (M. E. Irwin) UCR; Coches Prietos, 17 June 1967 (R. L. Brumley, D. S. Horning, Jr., R. O Schuster) UCD; Frazier Point, 11 May, 21 September 1968 (D. S. Horning, Jr., D. R. Miller, R. W. Thorp) UCD; Griffith Canyon, 1500', 17 June 1967 (D. R. Miller) UCD; S. Ridge, part at 1400', 9 May 1968, 20 June 1967 (R. L. Brumley, A. S. Menke, D. R. Miller) UCD; Santa Rosa Island, 8 July, 5 August 1939, LACM.

Some of the females are without the bare spots on the abdomen, and segment 8 is reddish in ground color. Some males have the humeri, lateral margins of the mesonotum, pleura in part, side of abdominal tergite 1, most of the sternites and genitalia, reddish in ground color; and in the same specimens most of the fore and middle femora are black. The stump vein at the base of the second submarginal cell was present in 15 out of 16 specimens.

Stenopogon pinyonae Wilcox, new species.
(Figures 132-135.)

MALE. Length 23 mm. Head black; face and occiput grayish white pollinose, frons dull black. Hairs and bristles black, beard brown, upper occipital hairs yellowish. Antennae black; hairs black; segments 29-18-62-26, sensory area 15, in length (fig. 132).

Mesonotum black; white pollinose, divided central stripe black, intermediate area indistinct, obscured by white pollen. Hairs black, anterior central hairs semierect and as long as antennae 1. Bristles black; 5-6 short humeral; 3-4 posthumeral; 4 presutural; 7-8 supraalar; 6-7 postalar; 3-4 slender posterior dorsocentral difficult to separate from the long hairs posteriorly. Pleura and coxae black; grayish white pollinose; hairs and bristles brownish black. Scutellum black; grayish white pollinose; 8 black marginal bristles.

Abdomen black; narrow margins of 2-6, grayish white pollinose. Hairs black, longer on sides of 1-3; about 10 short

black lateral bristles on 1. Sternites black; hairs sparse long erect black becoming shorter apically. Genitalia black; hairs black; arms of hypandrium curved up beyond end of upper forceps, apical tuft of black hairs quite long (figs. 133, 134, 135).

Legs black, tips of fore and middle femora, and narrow base of fore and middle tibiae, reddish. Hairs and bristles black; claws black, narrowly brownish at base; pulvilli brown; empodia reddish.

Halteres yellowish brown, base brown. Wings light brown; veins dark brown; anterior crossvein at 34/67 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell very narrowly open.

HOLOTYPE. Male, Pinon Flat, San Jacinto Mountains, California, 28 May 1940 (E. V. Stahl) CAS.

PARATYPES: CALIFORNIA: Riverside County: 3 males, same data (H. Reynolds) and 27 May 1939 (W. A. Fitschen, E. S. Ross) CAS, one on mallow, USNM; 1 male, Alpine Village, 4000', Santa Rosa Mountains, 14 July 1964 (E. I. Schlinger) UCR.

Five females collected at Pinyon Flat, 26 May 1948, 16 June 1941 (M. M. Barnes, A. F. Howland, J. Wilcox) JW, might belong here, but one was taken in copula with a male of S. jubatus Coquillett and the others are so similar that they cannot be placed here without further evidence.

The male paratype (E. S. Ross) USNM, was determined as S. nigriverticellus Bromley by the late Dr. S. W. Bromley. It has part of the beard, and hairs on the palpi, proboscis, pleura, coxae, abdomen, fore and middle femora, dirty white. Lateral bristles on the mesonotum and bristles on the legs excepting the hind tibiae and tarsi, yellowish. Apical hairs on the arms of the hypandrium reddish and the base of the axillary cell and the axillary lobe, white. The genitalia are typical of this species.

Stenopogon stonei Bromley.
(Figures 136-139.)

Stenopogon stonei Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 298. Types male and female, Ensenada, Mexico, July 5, 1930 (M. W. Stone) CAS.
Stenopogon stonei Martin, 1968a, Proc. Calif. Acad. Sci., vol. 35, p. 372, 394. In key, reference.

MALE. Length 20 mm. Head black; face yellowish white, frons and occiput grayish pollinose. Upper half of mystax, hairs on frons and ocellar tubercle, and a few upper occipitals, black; otherwise yellowish. Antennae black; hairs brown to black; segments 25-16-54-33, sensory area 24, in length (fig. 136).

Mesonotum black; brownish pollinose, divided central stripe black. Anterior central hairs erect, black, as long as antennae 1-2, longer posteriorly; on humeri, lateral and posterior margins, yellowish. Bristles yellowish; 3 posthumeral; 4 presutural; 7 supraalar; 7 postalar; dorsocentrals slender

black, 7 posterior and 4 anterior. Pleura and coxae black; brownish pollinose; hairs yellow. Scutellum black; brown pollinose; 9 marginal bristles, black basally, yellow apically.

Abdomen black, thinly yellowish gray pollinose, posterior margins of 2-4 densely so. Hairs yellow, dense, long on tergites 1-4, shorter apically; about 8 slender yellow lateral bristles on 1. Sternites black; yellowish pollinose; hairs erect yellowish, dense on 1-3. Genitalia black; hairs orange, short dense at apex of hypandrium arms (figs. 137, 138, 139).

Femora black, apical fifth yellowish red; tibiae yellowish red, apical 1/3 of fore and middle and apical 3/5 of hind ones black; tarsi yellowish red, apices of hind ones brownish. Hairs yellowish; bristles yellowish red; claws black, base reddish; empodia and pulvilli reddish.

Halteres dull yellowish. Wings light brown; basal third of anal, basal half of axillary cell, and axillary lobe white. Veins brown; anterior crossvein at 27/56 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 18 mm. Mystax all black. Abdominal tergites 1-6 yellowish gray pollinose; sides of 5-6 and all of 7-8, bare of pollen; apical spines black. Wings light brown; anterior crossvein at 25/50 length of discal cell.

DISTRIBUTION. MEXICO: Baja California del Norte: Ensenada (see above), 1 August 1934 (P. H. Timberlake) on sea beach, UCR; 31 miles N. of Ensenada, 1 August 1934 (A. J. Basinger) CAS, USNM; "Punta Piedra" about 30 miles NE. of Ensenada (by old Highway 1) 15 September 1966 (Saul and Suzy Frommer) UCR.

Male mystax varies from all black with the tips of the lower bristles yellowish, to yellowish with the upper third black; some females have the tips of the lower bristles yellowish.

OBSCURIVENTRIS GROUP

Facial gibbosity extends about 3/4 of the distance from the oral margin to the antennae, mystax formed mainly of slender bristles, cheeks all pollinose; upper occipital hairs all white or yellowish and bent forward at about a right angle. Abdomen black; male genitalia short, arms of the hypandrium directed caudad and subequal to or shorter than the upper forceps. Femora black, the tips reddish; apical third or more of the hind tibiae and at least the tips of the fore and middle ones, brown or black. Male wings with the basal, anal, and axillary cells and the axillary lobe, all or largely white.

A small group of closely related species known at present from California and Baja California. Species with similar male genitalia but placed in other groups are: S. stonei Bromley; S. neojubatus Wilcox and Martin; S. melanderi, new species; and S. obispae, new species.

Stenopogon obscuriventris Loew, described from California nearly 100 years ago, apparently has not been correctly

identified since. Dr. Howard E. Evans, Museum of Comparative Zoology, Harvard University, kindly made comparison of specimens with the types. Included were specimens of S. andersoni Bromley and S. timberlakei Bromley determined by the writer, and S. obscuriventris Loew determined by the late Dr. S. W. Bromley. Dr. Evans found that a female specimen of S. andersoni Bromley from Warner Springs, California, would make a good homotype. Stenopogon timberlakei Bromley is also considered to be a synonymn of S. obscuriventris Loew.

The flies determined previously as S. obscuriventris Loew are considered to be specimens of S. rufibarbis Bromley with yellowish hairs and bristles instead of reddish hairs and bristles.

Key To The Species (Males)

1. Abdomen largely shining black; fore and middle tarsi and hind tarsi except segments 1-2, reddish 2
   Abdomen densely grayish pollinose except tergite 7; segment 5 of the fore and middle tarsi and at least apices of segments 1-5 of hind tarsi, brownish or black 3

2. Style of antennae about 1/3 length of segment 3 (23/65); arms of the hypandrium as long as the lower forceps, with short orange apical hairs; length 22-24 mm. (California) . S. inyae Wilcox, new species
   Style of antennae about 1/2 length of segment 3 (36/63); arms of the hypandrium shorter than lower forceps, with short golden apical hairs; length 21-23 mm. (California) . . . . S. felis Bromley

3. Upper forceps broadly rounded at apex in dorsal view; white at the base of the wings extends into the base of the discal and posterior cell 5; length 17-20 mm. (California) . . . . . S. mojavae Wilcox, new species
   Upper forceps more or less pointed in dorsal view; white of the wings confined to the basal, anal, and axillary cells and the axillary lobe; length 20-27 mm. (California, Baja California del Norte). . . . . S. obscuriventris Loew

Stenopogon felis Bromley.
(Figures 144-147.)

Stenopogon felis Bromley, 1931, Annals Entomol. Soc. Amer., vol. 24, p. 429. Types, male and female, Coronado, California, June 22, 1890 (F. E. Blaisdell) OSU.

MALE. Length 23 mm. Head black; face yellowish white, frons yellowish brown, occiput yellowish gray, pollinose. Hairs and bristles yellowish, on frons and ocellar tubercle black. Antennae black; hairs yellowish; segments 33-18-63-36, sensory area 15, in length (fig. 144).

Mesonotum black; golden brown pollinose, divided central stripe and intermediate areas at some angles brown. Central anterior hairs black semierect and subequal in length to antennae 1 with many yellowish hairs in extreme anterior part, posteriorly longer; hairs otherwise quite numerous long yellowish. Bristles yellowish; 6-7 very weak humeral; 5 posthumeral; 5 presutural; 9-10 supraalar; 8 postalar; 8 posterior and about 6 (mostly black) anterior dorsocentral. Pleura and coxae black; golden brown pollinose; hairs yellowish. Scutellum black; golden brown pollinose; 10-12 yellowish marginal bristles.

Abdomen shining black; narrowly gray pollinose laterally and anteriorly on the basal segments. Hairs yellowish, long on sides of 1-4 with some coarse hairs basally, becoming shorter apically; about 10 yellowish lateral bristles on 1. Sternites shining black; hairs dense long erect on 1-4, gradually shortening apically. Male genitalia black; hairs yellowish, golden on apices of hypandrium (figs. 145, 146, 147).

Femora black, apical sixth yellowish red; tibiae yellowish red, apical fourth of fore and middle and apical half of hind ones, black; tarsi reddish, segments 1-2 of hind ones brownish apically. Hairs and bristles yellowish; claws black, base reddish; empodia and pulvilli yellowish red.

Wings very light brown; basal, anal,and axillary cells and axillary lobe, white. Veins brown; anterior crossvein at 32/65 length of discal cell; posterior cell 1 open subequal to, and 4 about half length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 21 mm. Antennal hairs brown with a few yellowish. Abdomen subshining black, tergites 1-6 thinly grayish pollinose on dorsum; sternites shining black, hairs quite long erect on 1-5; apical spines reddish brown. Wings light brown; anterior crossvein at 32/62 length of discal cell; posterior cell 1 open about half the length of anterior crossvein, and 4 closed and short petiolate.

DISTRIBUTION. California: San Diego County: Coronado, 20, 22 June 1890 (F. E. Blaisdell), male and female types OSU, 4 males CAS; La Jolla, 6 June 1935 (A. J. Basinger) CAS; San Diego, 13 July 1921, 1 male, 1 female, SDNHM (male labeled female, and female labeled male, indicating they were probably taken in copula).

Stenopogon inyae Wilcox, new species.
(Figures 148-151.)

MALE. Length 22 mm. Head black; face white, below the antennae golden, frons brown, occiput gray pollinose. Hairs and bristles yellowish, on ocellar tubercle black. Antennae

black; hairs yellowish; segments 29-15-65-23, sensory area 20, in length (fig. 148).

Mesonotum black; golden brown pollinose, humeri grayish, divided central stripe brown. Hairs yellowish, central hairs with a few black intermixed, anteriorly as long as antennae 1. Bristles yellowish; 3 weak humeral; 4-5 posthumeral; 4 presutural; 7 supraalar; 6 postalar; 6 posterior and 3 anterior dorsocentral. Pleura and coxae black; grayish pollinose, golden on mesopleura; bristles yellowish; hairs white. Scutellum black; golden gray pollinose; 10 yellowish marginal bristles.

Abdomen shining black; lateral margins thinly, anterior and posterior margins densely, grayish pollinose. Hairs short white, longer yellowish white on sides of tergites 1-3; about 7 yellowish lateral bristles on 1. Sternites subshining black; thinly grayish pollinose; hairs white erect, long on 1-3 becoming shorter apically. Genitalia black; hairs golden, orange at apices of hypandrium (figs. 149, 150, 151).

Femora black, apical sixth reddish; tibiae yellowish red, apical fifth of fore and middle, and apical 2/3 of hind ones, black; tarsi yellowish red, segments 1-2 of hind ones brownish except at base. Bristles yellowish; hairs yellowish white; claws black, base reddish; pulvilli yellowish red; empodia reddish.

Halteres reddish, stem yellowish, base brown. Wings very dilute brown; basal, anal,and axillary cells and axillary lobe, white. Veins brown; anterior crossvein at 35/73 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 23 mm. Head grayish white pollinose, face and frons with golden tinge; hairs on frons black; antennal segments 33-19-70-25, sensory area 35, in length. Mesonotum mostly black haired in central row and partly black in intermediate areas; 1-2 slender anterior dorsocentral bristles black. Abdominal tergites 1-6 and basal dorsum of 7, gray pollinose, sides and apex of 7 and all of 8 bare of pollen; apical spines reddish brown. Tips of fore and middle tibiae indistinctly brown, apical half of hind ones black; tarsi all reddish. Wings light brown, anterior crossvein at 38/75 length of discal cell.

HOLOTYPE. Male, Independence, California, 4 July 1958 (J. Wilcox) CAS.

ALLOTYPE. Female, 7.3 miles W. of Lone Pine, Inyo County, California, 11 July 1965 (Ballmer and Bath) UCR.

PARATYPES. CALIFORNIA: Inyo County: 1 male, same data as holotype, 8 July 1966; 1 male, Gray's Meadow, 6 July 1957 (J. Wilcox); 1 male, same data as allotype, UCR. Tulare County: 1 female, Smokey Valley Canyon, 6000', 13 June 1945 (C. Henne) JW.

The specimens labeled Independence were probably collected at Gray's Meadow which is about 6 miles west of Independence. Chris Henne informed me that Smokey Valley Canyon is on the upper South Fork of the Kern River on private property and is shown on the Tulare County Map of the Automobile Club of Southern California as Xyz Creek.

Stenopogon mojavae Wilcox, new species.
(Figures 152-155.)

MALE. Length 17 mm. Head black; (greased; grayish white pollinose; see note below). Mystax yellowish white; hairs on ocellar tubercle and frons brown, otherwise white. Antennae black; hairs white; segments 25-14-45-23, sensory area 10, in length (fig. 152).

Mesonotum black; grayish white pollinose, divided central stripe black. Hairs white, anterior central hairs mixed black and white and subequal in length to antennae 1, longer hairs posteriorly white. Bristles white; 3 posthumeral; 4 presutural; 6-7 supraalar; 5-6 postalar; 6-7 posterior and 4-5 black anterior dorsocentrals. Pleura and coxae black; grayish pollinose; hairs and bristles white. Scutellum black; gray pollinose; 8 white marginal bristles.

Abdomen black; gray pollinose. Hairs white, longer on sides of 1-3; 4-5 white lateral bristles on 1. Sternites black; grayish pollinose; hairs white and erect, long on 1-3, gradually shorter apically. Genitalia black, light brownish above on upper forceps, yellowish at tips of hypandrium; hairs white (figs. 153, 154, 155).

Femora black, apical 1/6 reddish; tibiae yellowish, apical 2/5 of fore and middle and apical 3/4 of hind ones, black; fore and middle tarsi yellowish basally, brownish apically, hind tarsi brown. Hairs white; bristles yellowish white; claws black, reddish basally; pulvilli light brown; empodia reddish.

Halteres light brown, base darker. Wings hyaline; basal, anal, and axillary cells extending into base of discal and posterior cell 5, and axillary lobe, white. Veins brown; anterior crossvein at 24/50 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 19 mm. Head white pollinose; hairs on frons white. Tergites 1-7 of abdomen gray pollinose, sides of 6-7 and 8 entirely bare of pollen; apical spines brown. Axillary cell white; posterior cell 4 narrowly open.

HOLOTYPE. Male, Yermo, San Bernardino County, California, 23 May 1940 (W. Reeves, M. Cazier, P. C. Ting) CAS.

ALLOTYPE. Female, same data.

PARATYPES. 1 male, 6 females, same data, and 1 female, same locality, 12 April 1966 (J. Wilcox). The male paratype after being degreased, had the face, frons, and occiput grayish white pollinose.

Stenopogon obscuriventris Loew.
(Figures 156-159.)

Stenopogon obscuriventris Loew, 1872, Berlin. Ent. Ztschr., vol. 16, p. 69 (Cent. X: No. 30). Type, female, California (H. Edwards), MCZ.

Stenopogon andersoni Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 302. Types, male and female, San

Jacinto Mountains, California, July 21, 1929 (L.D. Anderson) UK. Paratypes: same locality, June 30, 1933 (R. H. Beamer); Cuyama Ranch, California, July 25, 1935 (Jean Russell). New synonymy.

Stenopogon timberlakei Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 302. Types, male and female, Brentwood, California, June 12, 1925 (S. W. Bromley) USNM. Paratypes: 2 males, 3 females, same data; 1 female, Saltdale, California, June 19, 1932 (A. T. McClay) JW; 1 male, Jacintos Barranca, Kettleman Plains, Fresno County, California, June 4, 1907 (Bradley) CU?; Coalinga, Fresno County, California, elevation 500 feet, June 9, 1907 (Bradley) CU?; 1 male, Buena Vista Reservoir, California, April 27, 1917, OSU. New synonymy.

MALE. Length 20 mm. Head black; face and frons yellowish, occiput yellowish gray pollinose. Slender bristles of mystax and hairs yellowish, on frons and ocellar tubercle black. Antennae black; hairs brownish to black; segments 28-15-48-32, sensory area 10, in length (fig. 156).

Mesonotum black; golden brown pollinose, divided central stripe black, intermediate stripes indistinctly black. Central anterior hairs erect, black, and as long as antennae 1-2, longer posteriorly; hairs otherwise shorter, yellowish. Bristles yellowish; 3 weak humeral; 2 posthumeral; 4 presutural; 8 supraalar; 6 postalar; 8 posterior and 4 anterior (mostly black) dorsocentrals. Pleura and coxae black; densely golden brown pollinose; hairs and bristles yellowish. Scutellum black; golden brown pollinose; 7 yellowish marginal bristles.

Abdomen black; grayish brown pollinose, thin on tergites 7-8. Hairs short yellowish, longer on sides of 1-3; 7-8 yellowish lateral bristles on 1. Sternites black; grayish brown pollinose; hairs yellowish, long, erect on 1-3, shorter and erect on 4-5, short on 6-8. Genitalia shining black; hairs orange, short, and dense on apices of hypandrium (figs. 157, 158, 159).

Femora black, about apical third yellowish; tibiae yellowish, apical 3/8 of hind and tips of fore and middle, black; tarsi yellowish, segments 1-5 of hind and segments 3-5 of fore and middle, blackish apically. Hairs and bristles yellowish; no bristles below on fore femora. Claws black, base reddish; pulvilli whitish; empodia yellowish.

Halteres dull yellow, lower stem brown. Wings nearly hyaline; basal, anal, and axillary cells and axillary lobe, mostly white. Veins brown; anterior crossvein at 28/59 length of discal cell; posterior cell 1 open subequal to, posterior cell 4 open 1 1/2 times length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 23 mm. Part of hairs on frons and most of antennae yellowish. Eight yellowish scutellar bristles and several long hairs. Abdominal tergites 1-5, dorsum of 6 (broad lateral and posterior margin bare) grayish yellow pollinose; hairs yellowish white; sternites 1-5 grayish yellow pollinose, 6-8 bare; apical spines reddish brown. Only segment 5 of fore and middle tarsi darkened; 6-7 bristles mixed in with long hairs below on fore femora. Wings nearly hyaline; anterior crossvein at 35/68 length of discal cell.

Described from specimens collected near, Warner Springs, San Diego County, California, 21 June 1962 (J. Wilcox).

Some of the specimens have the hind legs almost all brown or black except the tip of the femora below and the base of the tibiae. This applied to part of the specimens from Contra Costa County (Antioch and Brentwood) and at first was used to separate S. timberlakei from the others but was found to be too variable and widespread to be reliable.

DISTRIBUTION. CALIFORNIA: Contra Costa, Fresno, Kern, Los Angeles, Mariposa, Modoc, Monterey, Riverside, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Tehama, Tulare, Ventura, and Yolo counties. May to July, but mostly June. MEXICO. Baja California del Norte: Arroyo Santo Domingo, 5.7 miles E. of Hamilton Ranch, dam site, 23 April 1963 (H. B. Leech, P. H. Arnaud, Jr.); 13 miles SW. of La Zapopita, Valle de Trinidad, 14 June 1963 (E. L. Sleeper); 3 miles S. of San Jose del Castillo, 16 June 1963 (E. L. Sleeper).

RUFIBARBIS GROUP

Gibbosity of face strong, extending 5/6 to 7/8 distance from oral margin to the antennae; mystax composed mostly of slender bristles; occipital hairs bent forward at nearly a right angle above. Central mesonotal hairs partly to largely black. Abdomen black; male terminalia and apical two or three segments sometimes reddish; male hypandrium with short arms extending caudo-laterally and usually concealing the apex or more of the lower forceps. Femora black, about the apical fourth reddish; fore and middle tibiae and all the tarsi reddish, hind tibiae varies from all reddish to having the apical half or less brown or black. Wings brown to nearly hyaline, males with the basal part white.

Considerable difficulty has been experienced in finding satisfactory characters to separate the following species (type locality in parentheses). Stenopogon rufibarbis Bromley (Lassen County, California); S. englehardti Bromley (Jacumba, California); S. martini Bromley (Parma, Idaho); and S. flavotibialis Martin (La Grulla, Baja California). Specimens from the type localities can be separated quite satisfactorily, but when they range out into other areas and intermingle, their identification becomes difficult. The male genitalia are similar and it seems possible that we have only one variable species. However, until more mated pairs are collected, it seems best to retain these names.

Stenopogon rufibarbis Bromley: the type male from northeastern California seems well defined with its reddish hairs and reddish tibiae. However, in its area, there are numerous yellowish haired specimens which were previously identified as S. obscuriventris Loew that are placed here in S. rufibarbis. The allotype female of S. rufibarbis was from southern California and similar reddish haired specimens from this area have been placed in S. engelhardti Bromley.

Stenopogon engelhardti Bromley: the type locality is in southeastern San Diego County, California near the Mexican

border. It has the hairs and bristles largely yellowish white and about the apical half of the hind tibiae black. Numerous specimens have been collected in other parts of southern California that have the hairs and bristles largely reddish and the apical half or less of the hind tibiae black. At the same time and in the same localities an equal number of specimens have been collected that have the hind tibiae all reddish; these have been grouped with S. engelhardti.

Stenopogon martini Bromley: was described from Parma, Idaho, and a wide range of localities. The hairs and bristles are yellowish white and the hind tibiae are black on the apical half or less. In the northern states the characters are quite constant but in California it is difficult to separate it from S. engelhardti. Specimens are also found with the tibiae all reddish so that it becomes confused with the light haired specimens of S. rufibarbis. The lighter colored wings, nearly hyaline, with the brown, if any, concentrated along the veins; the pollinose abdomen of the males; whitish hairs on the frons and ocellar tubercle; and whitish dorsocentral bristles, will separate most of the specimens from the other species.

Stenopogon flavotibialis Martin from Baja California appears to be a specimen of S. engelhardti with the tibiae all reddish. However, too few specimens are known to determine its status.

It is very important to collect mated pairs in all groups of Stenopogon so as to clear up some of these variations within species. Specimens collected mating should be so labeled as it is common practice to put pairs and prey on the same pin and unless specifically labeled the data might be lost. Powell and Stage (1962) collected eight female specimens of S. engelhardti with prey of their own species, seven of which were males.

The following key to the species applies mainly to the males and only to the typical specimens.

Key To The Species (Males)

1. Abdomen largely shining black 2
   Abdomen largely pollinose 6

2. Hind tibiae black on the apical half or less 3
   Hind tibiae all reddish 5

3. Style of the antennae about 1/4 length of segment 3, sensory area 2/3 length of segment 3; basal, anal, and axillary cells and axillary lobe white in both sexes; genitalia black, arms of the hypandrium on inner side with dense long golden hairs; length 21-24 mm. (California). . . . . S. diablae Wilcox, new species
   Style of antennae 1/3 or more length of segment 3, sensory area less than

1/2 length of segment 3; female wings all brown 4

4. Mystax reddish; style of antennae 1/2 length of segment 3; basal, anal, and axillary cells largely and axillary lobe, white in male; arms of hypandrium with very short orange hairs at apex; length 18-22 mm. (California) . . . S. rufibarboides Bromley

Mystax yellowish; style of antennae about 1/3 length of segment 3; anal and axillary cells largely and axillary lobe, white in male; apex and inner side of hypandrium arms with long dense yellowish hairs curved inward at tips; length 17-20 mm. (California, Baja California del Norte, Idaho, Nevada, Utah) . . . . . S. engelhardti Bromley

5. Bristles and hairs largely reddish; antennal segment 3 about three times the length of the style; length 18-23 mm. (California, Arizona, Nevada, Oregon, Utah, Washington) . . . S. rufibarbis Bromley

Bristles and hairs largely whitish yellow; antennal segment 3, 1 1/2 times the length of the style; length 18 mm. (Baja California del Norte). . . . . .S. flavotibialis Martin

6. Hairs on the frons and ocellar tubercle white, sometimes brownish; proctiger extends beyond the apex of the upper forceps; long hairs on inner arms of hypandrium continuing across the base; female tergites 1-6 gray pollinose, sides of 6 and all of 7-8 bare; length 18-22 mm. (Idaho, California, Colorado, Kansas, Montana, Nevada, Oregon, Washington, Wyoming) . . . . . S. martini Bromley

Hairs on frons and ocellar tubercle black; upper forceps extend beyond apex of proctiger; long dense hairs confined to inner side of the hypandrium arms; female tergite 1-6 and dorsum of 7 thinly, gray pollinose, sides of 7 and all of 8 bare; length 22-24 mm. (California, Nevada). . S. tolandi Wilcox, new species

Stenopogon diablae Wilcox, new species.
(Figures 160-163.)

MALE. Length 21 mm. Head black; face and frons golden, occiput grayish white, pollinose. Hairs and bristles yellowish white; on frons and ocellar tubercle black. Antennae

black; hairs brownish; segments 32-18-70-19, sensory area 50, in length (fig. 160).

Mesonotum black; grayish pollinose, divided central stripe black. Anterior central hairs erect black, 1 1/3 times length of antennae 1, longer posteriorly; hairs otherwise shorter yellowish with some black on the intermediate areas. Bristles yellowish white; 3 posthumeral; 4 presutural; 8 supraalar; 5 postalar; dorsocentrals black, 10 posterior and 7 anterior. Pleura and coxae black; pleura grayish brown and coxae gray pollinose; hairs and bristles yellowish white. Scutellum black; grayish brown pollinose; 10 yellowish white marginal bristles plus a few shorter black hairs.

Abdomen shining black; narrow lateral, anterior, and posterior margins gray pollinose. Hairs yellowish white, longer on sides of 1-3; 6 yellowish lateral bristles on 1. Sternites black; thinly gray pollinose; hairs erect yellowish, gradually becoming shorter apically. Upper forceps brown; hypandrium reddish brown; hairs golden with a long fringe on inner side of arms of hypandrium (figs. 161, 162, 163).

Legs yellowish red; basal 5/6 of femora black; apical 2/5 of hind tibiae brown on the outer side and with a suggestion of brown at the tips of the fore and middle ones. Hairs yellowish; bristles yellowish red; claws black, base reddish; pulvilli yellowish; empodia reddish.

Halteres pale brown, base darker. Wings light brown; basal 4/5 of basal, anal, and axillary cells and axillary lobe, white. Veins light brown; anterior crossvein at 31/62 length of discal cell; posterior cell 1 open subequal to, and posterior cell 4 open 1 1/2 times, length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 24 mm. Antennal hairs yellowish. Part of the dorsocentral bristles with white tips; pollen on thorax largely golden brown. Abdominal tergites 1-6 thinly yellowish gray pollinose, sides of 5-6 and all of 7-8 bare; apical spines brown. Posterior, discal, basal, anal, and axillary cells and axillary lobe, all more or less white.

HOLOTYPE. Male, Mt. Diablo, California, near Murietta Caves, 2 June 1940 (B. Brookman) CAS.

ALLOTYPE. Female, Mt. Diablo, California, 2 June 1940 (M. Cazier) CAS.

PARATYPES. 3 males, 1 female, same data as holotype, 3 females, same data as allotype, CAS; 3 males, 1 female, same data as allotype, 1 female, same locality, 16 May 1940 (J. W. MacSwain, G. E. Bohart) CIS.

Four of the paratypes have the tibiae all reddish and 3 have only the tips of the hind tibiae brownish. This species is very similar to S. jubatoides Bromley and further collecting could designate it as a light-haired form of that species. One specimen has a few black hairs in the upper part of the mystax.

Stenopogon engelhardti Bromley.
(Figures 164-167.)

Stenopogon engelhardti Bromley, 1937, Jour. New York Entomol.

Soc., vol. 45, p. 301. Types, male and female, Jacumba, California, April 26, 1935 (G. P. Engelhardt) CAS.

MALE. Length 17 mm. Head black; white pollinose, face with a slight yellowish tinge. Hairs and bristles yellowish white; hairs on frons and ocellar tubercle and a few upper occipitals, black. Antennae black; hairs brownish; segments 23-15-57-18, sensory area 35, in length (fig. 164).

Mesonotum black; grayish brown pollinose, divided central stripe black. Anterior central hairs erect, black, and as long as antennae 1, much longer posteriorly; otherwise yellowish white. Bristles yellowish white; 2 posthumeral; 3 presutural; 5 supraalar; 5 postalar; dorsocentrals black, 10 posterior and 3-4 anterior. Pleura and coxae black; pleura golden brown and coxae gray pollinose; hairs and bristles yellowish white. Scutellum black; golden brown pollinose; 6 yellowish and 3 black marginal bristles.

Abdomen shining black; broad lateral margins and narrow anterior and posterior margins, gray pollinose. Hairs yellowish white, longer on sides of 1-3; about 7 yellowish lateral bristles on 1. Sternites black; thinly gray pollinose; hairs yellowish white, long erect on 1-5, shorter on 6-8. Genitalia black, tips of upper forceps brown; hairs on upper forceps brownish to black, on hypandrium yellowish with a dense clump on inner side of arms (figs. 165, 166, 167).

Legs yellowish red; basal 5/6 of femora black and apical half of hind tibiae brownish. Hairs white; bristles yellowish; claws black, base reddish; pulvilli light brown; empodia reddish.

Halteres light brown, lower stem brown. Wings brown; basal 3/5 of anal and basal 4/5 of axillary cell and axillary lobe, white. Veins brown; anterior crossvein at 22/53 length of discal cell; posterior cell 1 open subequal to, and posterior cell 4 open about two times length of, anterior crossvein; anal cell narrowly open.

FEMALE. Length 18 mm. Occipital and antennal hairs yellowish white. Mesonotum golden brown pollinose; 4 presutural bristles. Abdomen gray pollinose with lateral bare spots on tergites 2, 2-3, or 2-4, the broad lateral margins of 6 and all of 7-8 bare of pollen; apical spines brown. Wings all brown; anterior crossvein at 29/58 length of discal cell.

Described from specimens collected at Jacumba, San Diego County, California, 13 May 1953 (J. Wilcox).

DISTRIBUTION. California, Idaho, Nevada, and Utah. Mexico: Baja California del Norte (see localities under S. flavotibialis Martin); April to June.

Some of the specimens placed here have reddish hairs and bristles and the hind tibiae are all reddish or yellowish.

Powell and Stage (1962) took many specimens with prey.

Stenopogon flavotibialis Martin.
(Figures 140-143.)

Stenopogon flavotibialis Martin, 1968, Proc. Calif. Acad. Sci., vol. 35, p. 380, figs. 8, 31. Type, male, Mexico, Baja California, La Grulla, elevation 6900 feet, Sierra San Pedro Martir, 12 June 1953 (P. H. Arnaud, Jr.) CAS.

This species appears to be what has been determined here as S. engelhardti Bromley with the tibiae all yellowish or reddish. This may not be correct. The antennae (fig. 140) and male genitalia (figs. 141, 142, 143) were drawn from a topotype specimen. About half of the specimens listed below have the tibiae all reddish and the others with the apical half or less of the hind tibiae black.

DISTRIBUTION. MEXICO: Baja California del Norte: 0.5 miles E. of Hamilton Ranch Airfield, 28 April 1963 (H. B. Leech, P. H. Arnaud, Jr.) 2 males, CAS; 5.7 miles E. of Hamilton Ranch, Arroyo Santo Domingo, dam site, 22 April 1963 (H. B. Leech, P. H. Arnaud, Jr.) Tipulid prey, 1 female, CAS; La Grulla, 6500', Sierra San Pedro Martir, 30 May 1958 (J. Powell) 2 males, CIS; Laguna Hanson, Lagunita, 2 July 1960 (E. L. Sleeper) 1 female, CSCLB; 1 mile E. of Meling Ranch, 26 May 1958 (J. Powell) 1 male, 1 female, CIS; Arroyo del Rosario, 3 miles above El Rosario, 26 April 1963 (H. B. Leech, P. H. Arnaud, Jr.) 3 females, CAS; 3 miles SW. of Rumorosa, 18 May 1958 (E. L. Sleeper) 2 females, CSCLB; 1 mile SE. of San Vicente, 24 March 1968 (Eric Fisher) 1 male, EF; 27 miles S., 25 April 1950 (R. L. Langston) 1 male, CIS; 2 miles S. of Tecate, 10 May 1968 (Eric Fisher) 4 males, 10 females, 7 miles W., 9 May 1963 (E. L. Sleeper) 1 male, 1 female, CSCLB.

The male genitalia are black except in two specimens where they are largely reddish.

Stenopogon martini Bromley.
(Figures 168-171.)

Stenopogon martini Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 303. Types, male and female, Parma, Idaho, May 13, 1934 (C. H. Martin) CAS. Paratypes: 17 males, 18 females, same data, CHM. CALIFORNIA: 1 female, Bridgeport, Mono County, June 23, 1929 (E. P. Van Duzee) CAS; 1 male, 2 females, Havilah, May 16, 1930, JW; 1 male, 1 female, Kern County, OSU; 1 female, Mint Canyon, 6 miles west of Palmdale, April 20, 1932 (E. P. Van Duzee) CAS. COLORADO: 2 males, 2 females, Creede, 8844', August, 1914 (S. J. Hunter) OSU; 1 male, 2 females, Durango, May 31, 1899, JW; 2 males, 2 females, Florissant, June 22, 1908 (Rob.) OSU; 1 male, 1 female, Jefferson County, June 26, 1913 (A. K. Fisher) OSU. KANSAS: 1 female, Douglas County, 900 feet altitude (F. H. Snow) feeding on winged ant (Camponotus sp.) OSU. MONTANA. 1 male, 1 female, Jefferson County, July 8, 1924, E24-38, JW. NEVADA. 1 female, Reno, June 23, 1890 (F. H. Hellman)

OSU. NEW MEXICO: 1 male, Las Cruces, May (Cockerell) OSU. OREGON: 1 male, Hermiston, May 10, 1930 (H. A. Scullen) JW; 3 males, Klamath Indian Reservation, Bly Mountains, June 23, 1933 (G. P. Engelhardt) JW; 1 male, "P" Ranch, Harney County, June 27, 1922 (W. J. Chamberlin) JW. WASHINGTON: 1 female, Kennewick, May 20, 1921 (A. L. Melander) OSU; 1 male, 1 female, Vantage, May 20, 1932 (Wm. W. Baker) JW. WYOMING: 4 males, 5 females, near Lander, 5000-8000', August (Roy Moodie) OSU; 1 female, Yellowstone National Park, June 24, 1930, OSU.

MALE. Length 21 mm. Head black; grayish white pollinose. Hairs and bristles yellowish white. Antennae black; hairs yellowish white; segments 26-16-67-22, sensory area 30, in length (fig. 168).

Mesonotum black; grayish pollinose, golden laterally; divided central stripe brown. Anterior central hairs largely black, some white anteriorly, semierect and about 4/5 length of antennae 1, longer and white posteriorly; otherwise short and white with a few black on intermediate areas. Bristles yellowish white; 1 posthumeral; 4 presutural; 10 supraalar; 10 postalar; 10 posterior and 4 anterior dorsocentral. Pleura and coxae black, grayish pollinose; hairs and bristles yellowish white. Scutellum black; grayish pollinose; 12 yellowish white marginal bristles.

Abdomen black; gray pollinose, sides of 2-3 subshining black. Hairs white, long on sides of 1-3; 7-8 white lateral bristles on 1. Sternites black; gray pollinose; hairs white, long erect on 1-5. Genitalia yellowish red; hairs yellowish white, dense long at base and on inner sides of arms of hypandrium (figs. 169, 170, 171).

Legs yellowish red; basal 5/6 of femora black, apical half of hind tibiae brown. Hairs white; bristles yellowish; claws black, base reddish; pulvilli whitish; empodia yellowish.

Halteres whitish, base of stem brown. Wings very light brown, nearly hyaline; first basal, anal, and axillary cells and axillary lobe, white. Veins dark brown; anterior crossvein at 27/57 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 21 mm. Pollen of head yellowish white. Mesonotum golden brown pollinose with a long gray triangle between the humeri and central stripe anteriorly. Abdomen gray pollinose, sides of 6 and all of 7-8 bare, 8 and terminalia reddish; apical spines reddish. Apical fourth of hind tibiae brown. Wings light brown, the cells lighter; anterior crossvein at 34/64 length of discal cell.

DISTRIBUTION. Alberta?, Arizona, California, Colorado, Idaho, Kansas, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming; April to August but mostly May and June. See list of paratypes for more definite localities.

The description is based on specimens from the type locality and these characters hold pretty well for the northern localities. As you come south, especially in California, the characters are not as distinct. Many specimens have

black hairs on the frons and ocellar tubercle and posteriorly in the central row of the mesonotum. Abdominal tergites 2-3 may be broadly polished black on the sides and the male genitalia becomes brown to nearly black. The hind tibiae are all reddish in a number of specimens. All which tend to confuse it with S. engelhardti Bromley.

The yellowish white hairs on the antennae; the yellowish posterior dorsocentral bristles; the pollinose abdomen of the males; and the nearly hyaline wings; all are fairly consistent in separating this species from S. engelhardti. Stenopogon obscuriventris Loew of Adisoemarto (1967) might be better placed here than under S. rufibarbis Bromley.

Stenopogon rufibarbis Bromley.
(Figures 172-175.)

Stenopogon californiae Back, ?Stenopogon obscuriventris Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 194. Description of both sexes from Lake Tahoe and Webber Lake, California, July 19 (Osten Sacken); Summit Sierra Nevada, Sisco, California, 6000'; Beaver Creek Hills, Beaver County, Utah. He says, "pile and bristles of face, occiput, posterior callosities and legs varying from deep fulvous to pale straw."

Stenopogon rufibarbis Bromley, 1931, Annals Entomol. Soc. Amer., vol. 24, p. 431. Type, male, Lassen County, California, July 20, 1911; 1 female, San Antonio Canyon, Ontario, California, July 25, 1907; OSU. Paratypes: 3 males, 1 female, same data as holotype; 1 female, Los Angeles County, California, 1200 feet, near Pasadena, May 5, 1910 (F. Grinnel, Jr.); 1 female, "Cala." (no other data).

Stenopogon rufibarbis Adisoemarto, 1967, Quaestiones Entomol., vol. 3, p. 20. Note and figs. 199-203 of male genitalia; British Columbia to Arizona, west to California.

Stenopogon obscuriventris Adisoemarto, 1967, Quaestiones Entomol., vol. 3, p. 20. Description; fig. 12, lateral view of head; fig. 42, palpi; figs. 194-198; Alberta and Colorado; west to California.

Back's (1909) description applies to S. rufibarbis as it is treated here and accounts for the many specimens found in various collections determined as S. californiae. The pale-haired specimens were determined by Bromley (1931, 1937) as S. obscuriventris and apparently by Adisoemarto (1967).

MALE. Length 21 mm. Head black; densely yellowish gray pollinose, thinly golden on frons. Hairs and bristles orange; on frons and ocellar tubercle black. Antennae black; hairs orange; segments 25-16-57-28, sensory area 24, in length (fig. 172).

Mesonotum black; golden brown pollinose; broadly divided central stripe black. Anterior central hairs erect black and subequal in length to antennae 1, longer posteriorly; intermediate hairs short sparse and mostly black; remaining hairs

orange, longer on humeri and lateral margins. Bristles orange; 3 posthumeral; 5 presutural; 7 supraalar; 6-7 postalar; 7 posterior and 2-3 anterior (mostly black) dorsocentral. Pleura and coxae black; pleura golden brown, coxae grayish, pollinose; hairs and bristles yellowish. Scutellum black; golden brown pollinose; 10 orange marginal bristles.

Abdomen shining black; narrow anterior and posterior margins densely and broad lateral margins thinly, gray pollinose. Hairs short orange, longer on sides of 1-3; 6-7 weak orange lateral bristles on 1. Sternites shining black, thinly grayish pollinose; hairs long, erect, orange, short on 6-7. Genitalia reddish; hairs orange, quite long and dense apically on arms of hypandrium (figs. 173, 174, 175).

Legs reddish; basal 4/5 of femora black. Hairs and bristles orange; 7-8 bristles below on fore femora among the long hairs. Claws black, base reddish; pulvilli and empodia reddish.

Halteres light brown. Wings brown; basal half of anal, basal 4/5 of axillary cell, and the axillary lobe, white. Veins brown; anterior crossvein at 26/60 length of discal cell; posterior cells 1 and 4 open slightly more than the length of the anterior crossvein; anal cell narrowly open.

FEMALE. Length 21 mm. Head golden pollinose; hairs on frons and ocellar tubercle mostly orange. Dorsocentral bristles all orange. Abdominal tergites 6-8 reddish brown; tergites 1-6 densely golden gray pollinose, narrow sides of 5, broad sides of 6, and all of 7-8, bare; sternites gray pollinose, on 2-5 broad basally and narrow at apex, sides and all of 6-8, bare of pollen; apical spines reddish. Wings uniformly brown but slightly lighter than in the male, anterior crossvein at 34/67 length of discal cell.

DISTRIBUTION. Alberta and British Columbia, Arizona, California, Idaho, Nevada, Oregon, Utah, and Washington; May to August but mostly June and July.

Described from recently collected specimens from Modoc County, California, which is adjacent to Lassen County on the north. Both counties are more or less typical of the Great Basin Region, elevation from 4000 to 7900 feet, with lots of sage brush and yellow pine. Specimens from eastern Oregon and Washington, and from Idaho, Nevada, and Utah with yellowish hairs and bristles, determined by the late Dr. S. W. Bromley as S. obscuriventris Loew, are placed here.

Stenopogon rufibarboides Bromley.
(Figures 176-179.)

Stenopogon rufibarboides Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 301. Types, male and female, Sequoia National Park, Potwisha, California, 2000-5000 ft. altitude, May 20, 1929 (E. C. Van Dyke) CAS. Paratopotypes, 3 males, 4 females, May 12-29, 1929. Paratypes, 2 females, San Diego, California, 7 August 1935 (Jean Russell).

MALE. Length 18 mm. Head black; face white, frons brownish, occiput gray, pollinose. Hairs and bristles orange, partly black on frons and ocellar tubercle. Antennae black; hairs brown to orange; segments 23-18-50-22, sensory area 12, in length (fig. 176).

Mesonotum black; brownish pollinose, broadly divided central stripe black. Anterior central hairs dense erect black, as long as antennae 1-2, longer posteriorly; hairs otherwise orange, short and sparse on intermediate areas. Bristles orange; 3 posthumeral; 4 presutural; 7 supraalar; 6 postalar; dorsocentrals slender black, 10 posterior and 4-5 anterior. Pleura and coxae black; brownish pollinose; hairs yellowish. Scutellum black; brownish pollinose; 8 black marginal bristles.

Abdomen shining black; lateral, anterior, and posterior margins narrowly gray pollinose. Hairs orange, long and recumbent with longer erect on sides of 1-4; about 7 orange lateral bristles on 1. Sternites shining black; hairs erect orange gradually becoming shorter apically. Genitalia shining black with sparse long orange hairs; tips of hypandrium with dense very short orange hairs (figs. 177, 178, 179).

Femora black, about apical fifth yellowish red; about apical fifth of hind tibiae black; remainder of legs yellowish red. Hairs and bristles orange; claws black, base orange; pulvilli yellowish; empodia orange.

Halteres yellowish, lower stem brown. Wings light brown; basal, anal, and axillary cells and lobe, white. Veins brown; anterior crossvein at 20/47 length of discal cell; posterior cells 1 and 4 open slightly more than the length of the anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Antennal segments 24-18-65-27, sensory area 20, in length. Tips of scutellar bristles reddish. Abdominal tergites 1-6 thinly grayish pollinose, sides of 5-6 and all of 7-8 bare; apical spines reddish. Wings very pale brown; anterior crossvein at 37/68 length of discal cell.

DISTRIBUTION. CALIFORNIA: Alameda County: Oakland, 6 June 1932 (E. S. Ross) CAS. Contra Costa County: Mt. Diablo, 18 May 1947, 3-6 June 1940, 15 June 1932, 1949, 8 July 1949 (T. G. H. Aitken, R. Dow, C. D. MacNeill, E. S. Ross) CAS, CIS, USNM; Rock City, 24 May 1940 (E. G. Linsley) CAS. Kern County: Mt. Pinos, 6800', 2 July 1965 (M. R. Gardner) UCD. Marin County: Alpine Lake, 29 June 1956 (C. D. MacNeill) CIS. San Luis Obispo County: 6 miles NE. of Santa Margarita, 22 June 1958 (E. G. Linsley) CIS. Tehama County: 12 miles W. of Mineral, 24 June 1963 (D. J. and J. N. Knull) OSU. Tulare County: Sequoia National Park, Ash Mountain, 9 June 1952 (R. C. Bechtel) UCD, Paradise Valley, 3000-5000', 18, 19 May 1929 (E. C. Van Dyke) CAS, JW, USNM (labeled paratypes but not listed from this exact locality); Potwisha, types male and female (see above). One of the female paratypes from San Diego has the hairs and bristles of the hind legs almost all brownish or black, indicating it might belong in the Wilcoxi Group.

Several of the females have the hind tibiae all reddish and a number of the specimens have the marginal and upper

bristles of the mystax black or blackish at the base indicating a relationship to S. bromleyi new species (see note under S. bromleyi).

Stenopogon tolandi Wilcox, new species.
(Figures 180-183.)

MALE. Length 23 mm. Head black; face and frons yellowish white, occiput white, pollinose. Hairs and bristles white, on frons and ocellar tubercle black. Antennae black; hairs below brownish, above white; segments 25-16-65-17, sensory area 40, in length (fig. 180).

Mesonotum black; gray pollinose with a slight golden tinge, divided central stripe black. Anterior central hairs semierect and as long as antennae 1, longer posteriorly; mostly short black on intermediate areas; laterally and on humeri white. Bristles yellowish white; 4-5 short humeral; 3-4 posthumeral; 4 presutural; 6-7 supraalar; 8 postalar; 8-9 yellowish and 3 black posterior and 7 black anterior dorsocentral. Pleura and coxae black; gray pollinose; hairs and bristles white. Scutellum black; gray pollinose; 10 white marginal bristles.

Abdomen black; gray pollinose. Hairs white, longer on sides of 1-3; 5 yellowish white lateral bristles on 1. Sternites black; gray pollinose; hairs erect white, short on 6-8. Genitalia brown, upper forceps light brown; hairs on upper forceps brown, on hypandrium white and long on inner side of arms (figs. 181, 182, 183).

Legs yellowish red; basal 5/6 of femora black, apical 2/5 of hind tibiae brown. Hairs white; bristles yellowish white; claws black, base reddish; pulvilli light brown; empodia yellowish red.

Halteres light brown. Wings light brown; first basal, basal 3/4 of anal, basal 4/5 of axillary cell, and axillary lobe, white. Veins brown; anterior crossvein at 32/70 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. length 23 mm. Dorsocentral bristles all white. Abdominal tergites 1-6 and dorsum of 7 thinly, gray pollinose, sides of 7 and all of 8 bare; apical spines reddish brown. Wings uniformly light brown; anterior crossvein at 36/72 length of discal cell.

HOLOTYPE. Male, California, Inyo County, Lone Pine, 10 June 1949 (J. Wilcox) CAS.

ALLOTYPE: Female, same data (Guy F. Toland) CAS.

PARATYPES. CALIFORNIA: Inyo County: 1 female, Alabama Hills, 24 May 1937 (J. H. Mitchell) CAS; 1 female, Argus Mountains, 22 May 1936 (F. Bryant) CAS; 3 females, Big Pine, 8 June 1937 (L. R. Gillogly, L. D. Phillips) CAS; 1 female, (A. E. Meier) CIS; 1 male, 6 females, 12 June 1958 (J. Wilcox) JW; 1 male, 2 females, Big Pine Creek, 13 June 1965 (F. D. Parker) UCD; 1 female, Bishop, 11 June 1949 (Guy F. Toland) JW; 1 male, 3 miles N., 11 June 1969 (L. S. Hawkins, Jr., R. L. Penrose) UI; 3 males, 4 females, Cartago, 30 May 1963 (Eric Fisher) EF; 4 males, 5 females, Deep Springs,

5 July 1957 (C. H. and D. Martin, J. Wilcox) CHM, JW; 1 male, Lake, 16 June 1937 (D. Little) CAS; 3 females, 17 July 1953 (D. D. Linsdale) CIS; 1 male, 3 females, Diaz Lake, Owens Valley, 7, 10 June 1937 (T. G. Aitken, C. A. Hamsher) CAS; 1 male, Independence, 17 June 1965 (J. R. Birchim) JRB; 1 male, 1 female, 31 May 1963 (Eric Fisher) EF; 1 female, Little Lake, 22 June 1937 (J. H. Mitchell) CAS; 7 males, 16 females, Lone Pine, 16 May to 14 June 1937 (B. Brookman, R. C. Dickson, N. W. Frazier, L. R. Gillogly, C. A. Hamsher, D. Little, L. D. Phillips, B. E. White) CAS; 1 male, 2 females, 7 to 13 June 1937 (A. E. Meier) CIS; 8 males, 11 females, 10 June 1949 (Guy F. Toland, J. Wilcox) JW; 1 female, 1 mile N., 12 June 1964 (A. Gillogly) EF; 1 female, Oak Creek, 23 May 1937 (C. A. Hamsher) CAS; 4 males, 2 females, Owens Lake, 20 May to 7 June 1937 (T. G. Aitken, C. A. Hamsher) CAS; 2 females, Paradise Camp, 2 June 1954 (Don Burdick) CIS; 1 male, Westgard Pass Plateau, 27 May 1937 (T. G. Aitken) CAS. Mono County: 1 male, 2 females, 7 miles S. of Benton Station, 25 July 1962 (R. P. Allen) CDA. NEVADA: Lyon County: 6 males, 11 females, pair, Fernley and 10 miles S., 13 June 1949 (C. H. Martin, Guy F. Toland, J. Wilcox) CHM, JW. Pershing County: 2 males, 8 miles S. of Lovelock, 30 May 1958 (T. R. Haig) UCD. Washoe County: 1 male, 3 females, Nixon, 24 June, 3 July 1964 (W. K. Thrailkill) UI; 1 male, same data (M. E. Irwin) UCR; 1 male same data (S. G. Seminoff) CDA; 22 June 1962, 24 June, 3 July 1964, 1 male, 1 female, (E. J. Montgomery, F. D. Parker)UCD; 4 males, 2 females (E. J. Montgomery, R. L. Westcott) LACM; 2 males, 2 females (A. Gillogly, L. G. Woodley) EF; 1 male, 3 miles N., 21 June 1960 (C. E. Wemmer) CAS; 1 male, Pyramid Lake, 27 June 1968 (R. M. Bohart) UCD.

The specimens from California are quite consistent in having the apical half or less of the hind tibiae black or brown. A few of the specimens from Deep Springs, California, and most of the specimens from Nevada have the hind tibiae yellowish red and a few have a brownish discoloration on the apical two-fifths on the anterior side.

Named in honor of my late friend and collecting partner, Guy Fuller Toland.

WILCOXI GROUP

The facial gibbosity extends 5/6 of the distance from the oral margin to the antennae; mystax whitish to reddish and composed of weak bristles; occipital bristles hairlike and bent forward at a right angle. Anterior mesonotal hairs usually short and subequal in length to antennal segment 2. Abdomen black, usually shining or subshining in the males, thinly to densely pollinose in the females. Coxae with slender bristles; posterior side of the middle femora largely reddish; apex of the hind tibiae and usually the tips of the fore and middle ones, black; bristles of the hind legs largely black or brown; and hairs of hind tibiae and tarsi frequently brown or black. Male wings usually white basally.

Closely related to the Californiae Group but with the abdomen all black.

Key To The Species (Males)

1. Abdomen densely grayish to brownish pollinose; anterior mesonotal hairs as long as antennal segment 1; proctiger shorter than the upper forceps; length 19-21 mm. (California). S. obispae Wilcox, new species
   Abdomen shining black, margins grayish pollinose; anterior mesonotal hairs subequal in length to antennae 2; proctiger longer than the upper forceps 2

2. Arms of the hypandrium in lateral view as long or longer than the upper forceps 3
   Arms of the hypandrium shorter than the upper forceps 4

3. Basal 1/3 of the hind tibiae or less, black; arms of the hypandrium shorter than the base (25-30); length 21-27 mm. (California). . . . . S. wilcoxi Bromley
   Basal 2/3 of the hind tibiae black; arms of the hypandrium longer than the base (40-30); length 21-22 mm. (California). . . . . S. rafaelae Wilcox, new species

4. Abdomen white haired; fore and middle tibiae black at tips; basal 1/3 of the wings white; arms of hypandrium to length of base (15-30); length 20-21 mm. (California). . . S. antoniae Wilcox, new species
   Abdomen largely black haired; fore and middle tibiae all reddish; wings uniformly light brown; arms of hypandrium to length of base (15-25); length 21 mm. (California) . . . . . S. bakeri Wilcox, new species

Stenopogon antoniae Wilcox, new species. (Figures 184-187.)

MALE. Length 21 mm. Head black; densely white pollinose with a slight yellowish tinge. Hairs and bristles yellowish white; on frons and ocellar tubercle black. Antennae black; hairs yellowish, several brown on 1; segments 28-16-54-32, sensory area 24, in length (fig. 184).

Mesonotum black; brown pollinose, divided central stripe black. Anterior central hairs black, subequal in length to

antennae 2, posteriorly much longer and mostly whitish; short, sparse, and golden on intermediate areas; longer and yellowish on humeri and lateral margins. Bristles yellowish; 3-4 weak humeral; 5 posthumeral; 4-5 presutural; 11 supraalar; 7 postalar; dorsocentrals weak, 5-6 anterior ones mostly black. Pleura and coxae grayish brown pollinose; hairs and bristles yellowish white. Scutellum brown pollinose; 8 yellowish white marginal bristles.

Abdomen shining black; anterior, posterior, and lateral margins, grayish pollinose. Hairs white, long on sides of 1-3, short otherwise; about 16 weak yellowish lateral bristles on 1. Sternites subshining black, thinly gray pollinose; hairs long erect white, gradually becoming shorter from 1-5, short on 6-7. Genitalia black; hairs on upper forceps brown to black; on proctiger white; on hypandrium yellowish basally, short orange at apices (figs. 185, 186, 187).

Femora black; apical seventh of fore ones reddish; apical fourth of middle ones and a basal posterior spot reddish; hind ones indistinctly reddish at apex on venter. Hind tibiae brownish black, dorsal basal 2/5 reddish; fore and middle tibiae reddish, about apical 1/3 black. Fore and middle tarsi black apically, reddish basally; hind ones all black. Hairs and bristles yellowish white; at apex of hind femora and on hind tibiae and tarsi, brownish black. Claws black, reddish basally; pulvilli yellowish brown; empodia reddish.

Halteres dull yellowish, lower stem brown. Wings light brown; basal, anal, and axillary cells and lobe, white. Veins brown; anterior crossvein at 30/61 length of discal cell; posterior cell 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 20 mm. Antennal hairs largely black. Short sparse hairs on intermediate areas of mesonotum, black. Tergites 2-6 densely gray pollinose, 6 laterally and 7-8 bare; posterior margins of 2-4 reddish at middle; sternites 1-6 grayish pollinose; apical spines reddish brown. Posterior side of middle femora reddish and about basal half of hind tibiae reddish; only tips of fore and middle tibiae black; fore and middle tarsal segments indistinctly darkened apically and hind segments narrowly reddish at base. Wings light brown; anterior crossvein at 32/57 length of discal cell; posterior cell 4 open about half the length of anterior crossvein.

HOLOTYPE. Male, California, Claremont, 22 June 1941 (J. Wilcox) CAS.

ALLOTYPE. Female, same data, CAS.

PARATYPES. Seven males, 3 females, same data and 31 August 1941 (Guy F. Toland) JW; CALIFORNIA: Los Angeles County: 1 female, (Coquillett, 112) USNM; 1 female, Tanbark Flat, 8 July 1952 (J. J. Menn) CIS. San Bernardino County: 2 males, 4 miles NW. of Cajon Junction, 4 July 1958 (E. I. Schlinger) UCD; 1 male, Mountain Home, 28 August 1958 (J. C. Hall) UCD. Note: the type specimens were collected 2-3 miles northeast of Claremont on Base Line Avenue in San Bernardino County on the alluvium of the San Antonio River covered with quite dense weeds and brush.

Most of the specimens have the posterior side of the middle femora all or largely reddish. One female has the tibiae and tarsi reddish, but the bristles on the hind legs are largely black.

Stenopogon bakeri Wilcox, new species.
(Figures 188-191.)

MALE. Length 21 mm. Head black; face yellowish white, frons and occiput grayish, pollinose. Hairs and bristles yellowish; on frons and ocellar tubercle, black. Antennae black; hairs yellowish; segments 27-18-55-27, sensory area 15, in length (fig. 188).

Mesonotum black; grayish pollinose, divided central stripe black. Anterior central hairs black and subequal in length to antennae 2, longer posteriorly; short and black on intermediate areas; longer yellowish on humeri and lateral margins. Bristles yellowish; 5-6 weak humeral; 4 posthumeral; 5 presutural; 10 supraalar brown; 6 brown and 1 yellowish postalar; dorsocentral slender black, 5-6 anterior ones. Pleura and coxae grayish brown pollinose; hairs yellowish. Scutellum grayish pollinose; 12 black marginal bristles.

Abdomen shining black, posterior margin of tergites 2-3 whitish, sides grayish pollinose. Hairs short; on 1 yellowish; a few longer on basal sides of 2-3 reddish; remaining hairs black, long on sides of 2-3 and slightly shorter on 4; about 10 yellowish lateral bristles on 1. Sternites shining black; posterior margins of 1-3 whitish; thinly grayish pollinose; hairs long erect black becoming shorter on 6-7. Genitalia black; hairs on upper forceps black, on proctiger yellowish, on base of hypandrium brown and at apex coarse golden (figs. 189, 190, 191).

Femora black, apical fourth of fore, apical third and anterior side and apical 2/3 of posterior side of middle, and tips of hind ones, reddish yellow. Tibiae reddish yellow, apical 3/5 of hind ones black. Tarsi reddish yellow. Hairs and bristles of fore and middle legs yellowish; on hind legs brown to black, a few bristles on femora white. Claws black, base reddish; pulvilli light brown; empodia reddish.

Halteres dull yellow, lower stem brown. Wings uniformly light brown; veins brown; anterior crossvein at 28/55 length of discal cell; posterior cell 1 open 1 1/2 times and 4 two times length of anterior crossvein; anal cell narrowly open.

HOLOTYPE. Male, California, Los Angeles County, Claremont (Baker) USNM.

PARATYPE. Male, same data, CDA, antennal segment 2 missing; about half of scutellar bristles whitish; hypandrium reddish basally and apical hairs nearly orange.

Named in honor of the late C. F. Baker who collected many insects in the vicinity of Claremont, California, in the early part of the century.

Stenopogon obispae Wilcox, new species.
(Figures 192-195.)

MALE. Length 19 mm. Head black, densely yellowish gray pollinose. Hairs and bristles yellow; laterally on frons and on ocellar tubercle, brown to black. Antennae black; hairs yellowish, a few below on segment 1 brown; segments 29-19-57-30, sensory area 15, in length (fig. 192).

Mesonotum black; yellowish gray pollinose; divided central stripe black. Anterior central hairs black and subequal in length to antennae 1-2, longer posteriorly varying from brown to yellowish. Bristles yellowish; 2 weak humeral; 2 post-humeral; 4 presutural; 10-11 supraalar; 7 postalar; 10 weak posterior, 5-6 black anterior, dorsocentral. Pleura and coxae yellowish gray pollinose; hairs yellowish. Scutellum yellowish gray pollinose; 9 yellowish marginal bristles.

Abdomen black, densely grayish pollinose, sides of tergites 1-3 and posterior margins of 2-6 whitish. Hairs yellowish white; long on sides of 1-3, short otherwise; 9 white lateral bristles on 1. Sternites 1-7 gray pollinose; hairs erect yellowish white, long on 1-3. Genitalia black; hairs golden, at apex of hypandrium orange; sternite 8 bare with long yellowish hairs at apex (figs. 193, 194, 195).

Legs yellowish red; basal 3/4 of fore femora except narrow venter and base posteriorly, black; anterior basal 3/4 of middle femora black, somewhat darkened on posterior side; basal 4/5 of hind femora except dorsum, black; apical 2/5 of hind tibiae and tips of fore and middle ones, black; hind tarsi apically and segment 5 of fore and middle ones, darkened. Hairs and bristles yellow; claws black, base yellowish; pulvilli and empodia, yellowish.

Halteres yellowish, lower stem brown. Wings hyaline; basal, anal, and axillary cells and lobe, white. Veins brown; anterior crossvein at 28/58 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 19 mm. Face and frons golden brown pollinose; lateral hairs on frons and about 12 on ocellar tubercle, black. Dorsocentral bristles yellowish white with 7 anterior ones. Abdominal segments 1-6 brown pollinose, 7-8 bare, apical spines reddish brown. Fore femora black, apical fourth and a basal posterior spot, yellowish red; middle femora yellowish red, basal 3/4 of venter with middle third extending up on dorsum on the anterior side black; hind femora black, apical sixth, posterior side, and a dorsal basal spot, reddish; apical 3/4 of hind tibiae black. Wings light brown, anterior crossvein at 34/54 length of discal cell.

HOLOTYPE. Male, California, San Luis Obispo County, 10 miles W. of Simmler, 13 May 1962 (E. G. Linsley), CIS.

ALLOTYPE. Female, California, San Luis Obispo County, Grover, 13 August 1957 (E. G. Linsley), CIS.

PARATYPES. CALIFORNIA: San Benito County: 1 male and 1 female, San Benito, 25 May 1936 (M. Cazier) CAS. San Luis Obispo County: 1 female, Grover City, 14 August 1957 (E. G. Linsley) CIS; 1 female, Los Osos, 15 July 1970 (J. Wilcox)JW;

1 male, Oso Flaco Lake, 13 July 1959 (W. A. Steffan) CIS; 3 females, 14 July 1965 (J. S. Buckett, R. W. Spore) small butterfly prey, UCD; 1 male, 1 female, Pismo Beach, 29 June 1959 (P. H. Arnaud, Jr.) CDA. Santa Barbara County: 1 male, 2 females, Buellton, July 1934 (B. E. White) CAS; 1 female, Jalama Beach, 28 July 1964 (R. R. Snelling) honey bee prey, EF.

The females are similar to those of S. melanderi, new species which occurs in the same general area but later in the year. In the females of S. melanderi, the fore and middle femora are extensively reddish and the hind femora are black except at the tip and a small basal spot; at least some of the hairs on the hind tibiae and tarsi are black or brownish; and the dorsocentral bristles are black. In the females of S. obispae, the middle and hind femora have the most red and the fore femora are mostly black; the hairs and bristles on the hind tibiae and tarsi are white or yellowish; and the dorsocentral bristles are all or mostly white or yellowish.

Stenopogon rafaelae Wilcox, new species.
(Figures 196-199.)

MALE. Length 21 mm. Head black; face white, frons brownish, occiput gray, pollinose. Hairs and bristles yellowish white; on frons and ocellar tubercle, black. Antennae black; hairs brown to black; segments 28-17-57-27, sensory area 16, in length (fig. 196).

Mesonotum black; brownish pollinose, divided central stripe black. Anterior central hairs black and subequal in length to antennae 2; longer posteriorly; short hairs on intermediate area mostly black, yellowish anteriorly; longer yellowish on humeri and lateral margins. Bristles yellowish; 4-5 short humeral; 4 posthumeral; 4 presutural; 10 supraalar; 7 postalar; dorsocentrals slender black, 5 anterior ones. Pleura and coxae brownish gray pollinose; hairs and bristles white. Scutellum brownish pollinose; 8 white marginal bristles.

Abdomen shining black, posterior margins of tergites 2-5 reddish; grayish pollinose on lateral, anterior, and posterior margins. Hairs coarse white on sides of 1-3, slender shorter recumbent white on remainder; about 24 white lateral bristles on 1. Sternites shining black, posterior margins of 1-7 reddish; thinly grayish pollinose; hairs long erect white on 1-4 and 8, shorter on 5-7. Genitalia black; coarse hairs on upper forceps brown to whitish; fine hairs on proctiger and hypandrium white, short spinous yellowish at apices of hypandrium (figs. 197, 198, 199).

Femora black; apical sixth of fore ones, anterior apical fourth and posterior apical half of middle ones, and venter at apex of hind ones, yellowish red. Tips of fore and middle tibiae and apical 2/3 of hind tibiae black; reddish basally. Fore and middle tarsi reddish, apices slightly darkened; hind

tarsi black. Hairs and bristles yellowish; bristles on hind legs mostly black and hairs on hind tibiae and tarsi mostly brown. Claws black, base reddish; pulvilli and empodia reddish.

Halteres reddish brown. Wings hyaline; base white extending into discal and posterior cells 4-5. Veins brown; anterior crossvein at 25/58 length of discal cell; posterior cells 1 and 4 open subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Face yellowish white and frons brownish, pollinose. Dorsum of abdomen shining black, narrow posterior margins brownish; broad sides grayish pollinose, narrowly bare on lateral margins of 6; sternites 1-6 grayish pollinose, 5-6 bare laterally; apical spines black. Apical third and a dorsal streak extending to middle of fore femora, apical third and posterior side of middle femora, and apical sixth of hind femora, yellowish red; fore and middle tibiae and basal half of hind ones, yellowish red; tarsi yellowish red, segment 5 darkened apically. Wings evenly light brown; veins reddish to brown; anterior crossvein at 34/61 length of discal cell; posterior cell 1 open about half its length and 4 open subequal to length of anterior crossvein.

HOLOTYPE. Male, California, Santa Barbara County, Sunset Valley, 14 July 1938 (M. Cazier) B. Brookman Collection, CAS.

ALLOTYPE. Female, same data, CAS.

PARATYPES. Three males, 6 females, same data CAS; CALIFORNIA: Santa Barbara County: 1 male, 2 females, Figueroa Mountain, 12, 26 August 1967 (Carl W. Kirkwood) JW; 1 male, 3.2 miles E. of Refugio Pass, 3300', 30 July 1965 (B. Ruge) EF; 1 female, Santa Ynez Mountains, near Santa Barbara, 25 August 1963 (J. Powell) CIS.

Stenopogon wilcoxi Bromley.
(Figures 200-203.)

Stenopogon wilcoxi Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 300. Types, male and female, San Diego County, California; July 7, 1929 (R. H. Beamer) UK. Paratypes: California: Riverside County: Anza, August 6, 1935 (Jack Beamer); Idylwild, June 29, July 5, 1928 (E. C. Van Dyke); Idylwild, August 3, 1935 (Jean Russell); Tahquitz Canyon, June 27, 1928 (E. C. Van Dyke). San Bernardino County: Cajon Pass, August 22, 1931 (C. H. Martin). San Diego County: Campo, August 10, 1935 (Jack Beamer, Jean Russell); Jacumba, August 12, 1935 (Jack Beamer); Laguna Mountains, July 6, 1929 (L. D. Anderson, P. W. Oman); Pine Valley (W. J. Chamberlin); Warners, July 26 to August 2, 1921 (James).

MALE. Length 21 mm. Head black; grayish white pollinose, occiput gray. Hairs and bristles yellowish white; on frons and ocellar tubercle, black. Antennal segments 1-2 brown, 3 and style black, 3 yellowish at base; hairs black; segments 27-16-56-27, sensory area 17, in length (fig. 200).

Mesonotum black; thinly brownish pollinose, divided central stripe black. Hairs black, anterior central hairs as long as antennae 1, longer posteriorly; a few white on humeri, and on lateral and anterior margins. Bristles yellow; 6 weak humeral; 3-4 posthumeral; 4 presutural; 10 supraalar; 7 postalar; 9 posterior and 4 black anterior dorsocentral. Pleura and coxae black; thinly grayish brown pollinose; hairs and bristles, yellowish white. Scutellum black; brownish pollinose; 6 yellowish marginal bristles and several long hairs.

Abdomen shining black; basal segments thinly grayish pollinose anteriorly and laterally. Hairs short, white, longer on sides of tergites 1-3; 8 whitish lateral bristles on 1. Sternites shining black; thinly grayish pollinose; hairs white, long, erect on 1-3. Genitalia black, hypandrium varying from all black to all reddish; hairs black, on hypandrium yellowish, orange apically on arms (figs. 201, 202, 203).

Femora black; apical third of fore; apical third of middle, posterior side and dorsum; and apical sixth of hind; reddish. Tibiae and tarsi yellowish red, apical third of hind tibiae and hind tarsi except bases, black. Hairs and bristles white, on hind tibiae and tarsi mostly brown, and a few brown hairs above and below at apex of hind femora. Claws black, base reddish; pulvilli and empodia reddish.

Halteres white, extreme base brown. Wings very light brown; basal, anal, and axillary cells and axillary lobe, white; veins brown to yellowish basally; anterior crossvein at 30/61 length of discal cell; posterior cell 1 open, opening equal to length of anterior crossvein to nearly closed; posterior cell 4 open about 1 1/4 times length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Sides of tergite 6 and all of 7-8 bare of pollen; apical spines black. Apical fourth of hind tibia and apices of hind tarsal segments, black or brown. Wings uniformly light brown.

Several males from the San Jacinto Mountains, Riverside County, California, have only the axillary cell and lobe white, and others from San Diego County have antennal segments 1 and 2 largely yellowish. Two specimens have only about the posterior apical half of the middle femora reddish, and two others have indistinct posterior red streaks on the fore femora.

DISTRIBUTION. CALIFORNIA: San Diego and Riverside counties, June to August but mostly July and August.

The record from San Bernardino County is questioned and a male and female labeled Pine Valley, Texas, July 27, 1938 (Jean Russell) USNM, are undoubtedly mislabeled. Miss Russell apparently did all her collecting with Dr. R. H. Beamer. A check of his collecting records for 1938 (Jour. Kansas Entomological Soc., vol. 12, etc.) indicates he collected in Texas in June, in Arizona up to July 22, and in California from July 26 to mid-August; one record was found for Pine Valley, California, July 27, 1938.

This species is not found in numbers in most collections probably because it is most abundant in San Diego County, California. In the San Diego Natural History Museum there

are good series from Warners (Springs), Boulevard, Pine Valley, and Laguna (Mountains) which vary in elevation from 3132 to 5975 feet. There are also several specimens from San Diego (June) at or near sea level.

The following specimens are placed here tentatively: Mexico: Baja California del Norte, El Progresso, Sierra Juarez, 24 May 1959 (E. L. Sleeper) 1 male, CSCLB; and 29 miles S. of La Rumorosa, 5500', 8 July 1967 (M. E. Irwin) 1 female, UCR. The femora are black with the tips reddish; apical 3/4 of hind tibiae and apical fourth to 2/5 of fore and middle ones, black; hind tarsi black, narrowly reddish basally, fore and middle tarsi with segments darkened apically; hairs and bristles on hind tibiae and tarsi, whitish in the male, hairs mostly black in the female and bristles partly brown or black.

SCLEROPOGON LOEW

Scleropogon Loew, 1866, Berlin. Ent. Ztschr., vol. 10, p. 26 (Cent. 7, no. 45). Type-species: Scleropogon picticornis Loew (mon.).

Scleropogon Coquillett, 1904b, Proc. Entomol. Soc. Wash., vol. 6, p. 179. Coquillett observed that the hypopleura of "sabaudus" Loew (the type species of Stenopogon Loew) is bare, but nearly covered with bristles and hairs in "picticornis" Loew. His observation was confirmed by an examination of the Loew type by Samuel Henshaw. This is the first use of the term "hypopleura" for this particular area that we have noted; it was adopted by Back (1909) and other authors later.

Back (1909) and most authors since then have considered Scleropogon Loew to be a synonymn of Stenopogon Loew. Bromley (1937) considered Scleropogon as a subgenus of Stenopogon. As indicated previously, the absence of hairs and bristles on the hypopleura is quite unique in the Asilidae, so that a separation of Stenopogon from Scleropogon seems justified. The distribution in North America of the two genera is quite different (figs. 1 and 2). Records of the Mexican species were obtained from Martin (1968a); the five species listed from Baja California belong in Stenopogon Loew and the 20 species from the mainland of Mexico belong in Scleropogon Loew. Other characters which tend to separate Scleropogon from Stenopogon are given in the introduction and the key to the genera.

In 1968 no species of Scleropogon Loew were known from Baja California and none of Stenopogon Loew had been taken from the mainland of Mexico. Since then Stenopogon boharti Bromley has been collected in Chihuahua and northern Sonora, Mexico (see records under S. boharti). Scleropogon picticornis Loew has been collected in Baja California Sur (see records under S. picticornis) and Scleropogon duncani (Bromley) in Baja California del Norte and records were found of its presence in Baja California Sur (see records under S. duncani).

The genus is divided into two groups based on the open or closed first posterior cell of the wings. Martin (1970) terms these the Neglectus and Scleropogon groups. Here they are termed the Subulatus and Truquii groups based on the first-named species now included in each group. This character is reliable for most species but must be used with caution as it varies from narrowly open to closed and short petiolate in several species, especially S. coyote (Bromley) and S. indistinctus (Bromley). The two groups are not separated in the text but figures 204-231 are of the Subulatus group and figures 232-263 are of the Truquii group.

Martin (1968a, figures 17-29) shows the wing venation of several species in each group and also one species of Stenopogon Loew. Martin (1970, table 2) shows the number and variation of the hypopleural ("metepimeral") bristles of 19 species of Scleropogon Loew from the United States and Mexico.

Key To The Species Of Scleropogon Loew

1. Posterior cell 1 of the wings open (Subulatus Group) 2
   Posterior cell 1 closed and petiolate (Truquii Group) 9

2. Wings brown 3
   Wings hyaline 5

3. Posterior cell 4 broadly open; fore femora below with about 20 short bristles, usually black; mesonotum yellowish red, central and intermediate stripes black; abdomen yellowish red, brownish black laterally; length 18-25 mm. (Mexico, New Mexico, Texas). . . . . S. texanus (Bromley)
   Posterior cell 4 usually closed and short petiolate, sometimes narrowly open; fore femora below with 6-8 long bristles, usually pale 4

4. Mesonotum black, humeri reddish; femora black, apical fourth of fore and middle ones reddish; abdomen black, dorsum of tergite 2 and all of 3-5, reddish; upper half of male mystax black, female mystax all yellowish; antennae black, hairs black; length 18-25 mm. (Florida). . S. floridensis (Bromley)
   Mesonotum reddish, central and intermediate stripes black; legs reddish, fore femora with dorsal black stripe on basal 2/3; abdomen reddish or yellowish, segments 6-8 and genitalia brownish; mystax reddish to yellowish;

antennal segments 1-2 yellowish, hairs yellowish; length 20-28 mm. (Alabama, Florida, Georgia, Kansas, North Carolina, Oklahoma, South Carolina, Texas). . . . . S. subulatus (Wiedemann)

5. Antennal segment 3, 1 3/4 times as long as 1-2; abdomen slender, gray pollinose, black with posterior margins of tergites 2-5 yellowish, 7-8 of female bare of pollen and sometimes reddish; hind legs largely brown; hairs and bristles yellowish white; length 17-22 mm. (Arizona, California, Mexico, Nevada, New Mexico) . . . S. duncani (Bromley)

Antennal segment 3 at most 1 1/2 times length of 1-2 6

6. Posterior cell 4 broadly open; posterior cell 1 broadly open; hypopleura with fine hairs 7

Posterior cell 4 closed and usually short petiolate; posterior cell 1 narrowly open to closed and short petiolate; hypopleura with bristles 8

7. Abdomen reddish brown, black laterally on basal segments, thinly white pollinose, female tergite 5 laterally and 6-8 bare of pollen; mesonotal and hairs dorsally on basal abdominal tergites, black; wings tinged with brown, male axillary cell and lobe, white; length 26-29 mm. (British Columbia, California, Washington) . . . . . S. bradleyi (Bromley)

Abdomen black, narrow posterior and lateral margins yellowish, densely white pollinose, female tergites 6-8 bare of pollen; mesonotal hairs golden and on abdomen white; wings hyaline, male axillary cell and lobe faintly white; length 19-28 mm. (Alberta, Arizona, British Columbia, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming). . . . . S. neglectus (Bromley)

8. Wings hyaline; abdomen short and broad, the wings extend beyond the apex of tergite 5; apical half of the posterior side of the middle femora, black; length 15-19 mm. (Alberta, Arizona, Colorado, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Wyoming) . . .S. coyote (Bromley)

Wings usually tinged with brown along the veins; abdomen long and slender, the wings extend just slightly beyond the apex of tergite 4; posterior side

of the middle femora reddish; length 19-26 mm. (Arizona, Mexico, New Mexico, Oklahoma, Utah) . . . . . S. indistinctus (Bromley)

9. Abdomen largely yellowish red, at most sides of basal tergites black; legs yellowish red, at most anterior side of femora black 10

At least dorsum of basal abdominal segments black or brown; anterior and posterior sides of hind femora black 11

10. Legs yellowish red; abdomen yellowish red, sides of basal tergites black, densely yellowish gray pollinose, lateral bristles only on tergite 1; wings grayish hyaline, petioles of posterior cells 1 and 4, longer than the anterior crossvein; length 12-14 mm. (Arizona, New Mexico, Texas). . . . . S. kelloggi (Wilcox)

Legs yellowish red, dorsum of fore, anterior side of middle and hind femora, black; abdomen yellowish red, sides of basal tergites and sometimes dorsum of apical female tergites brown or black, grayish white pollinose, lateral bristles on tergites 1-3; wings hyaline, petioles subequal to length of anterior crossvein; length 16-20 mm. (Arizona) . . . . . S. huachucanus (Hardy)

11. Male abdominal tergites 2-7 or 3-7, and female 2-5 or 3-5, with lateral anterior bare spots, varying from largely black to largely reddish with basal segments black, gray pollinose; 6-8 anterior dorsocentral bristles; petioles of posterior cells 1 and 4 subequal to length of anterior crossvein; length 20-28 mm. (Arizona, California, Colorado, Kansas, Mexico, Montana, Nebraska, Nevada, New Mexico, Wyoming). . . . . S. picticornis Loew

Abdominal tergites without lateral bare spots; usually only 2-3 anterior dorsocentral bristles 12

12. Petiole of posterior cell 1, 4-5 times as long as the anterior crossvein, wings hyaline basally, grayish brown apically; abdomen short and broad, dorsum gray and sides brown pollinose, black in male, black to

nearly all reddish in female; length 13-15 mm. (Arizona, Mexico) . . . . . S. haigi Wilcox, new species

Petiole of posterior cell 1 subequal to length of anterior crossvein; abdomen long and slender (if petiole of posterior cell 1 is half the length of the anterior crossvein or less, see couplet 8) 13

13. Male abdomen dark brown, dorsum of female tergites broadly reddish, dorsum thinly and sides densely white pollinose; bristles of male mesonotum and legs largely brown or black, posteriorly on female mesonotum and on legs, yellowish; wings light brown, male axillary cell and lobe white; legs largely brown; length 19-22 mm. (Arizona). . . . S. dispar (Bromley)

Abdomen light brown to yellowish in ground color; bristles of thorax and legs largely white or yellowish 14

14. Abdomen light brown, male densely white pollinose, female grayish white; wings hyaline, short, 6-10 mm. in length; legs largely brown; length 15-22 mm. (Texas) . . . S. cinerascens (Back)

Abdomen largely yellowish, quite densely grayish white pollinose; wings hyaline, 13-15 mm. in length; legs largely yellowish; length 20-30 mm. (Colorado, Kansas, Nebraska, Oklahoma, South Dakota, Texas). . . . S. helvolus Loew

Scleropogon bradleyi (Bromley).
(Figures 204-207.)

Stenopogon bradleyi Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 309. Types male and female, Grant Forest, California (6400-7000'), August 9-13, 1937 (J. C. Bradley) on same pin, USNM.

MALE. Length 25 mm. Head black, face on the sides below reddish; grayish white pollinose, frons yellowish brown. Hairs and bristles yellowish white, short hairs on frons and ocellar tubercle black. Antennae black, base of segments and center of 3 reddish; hairs golden; segments 30-17-61-28, sensory area 15, in length (fig. 204).

Mesonotum red; broad central stripe and intermediate stripes, black; thinly gray pollinose. Anterior hairs black, semierect, and about half the length of antennae 2, longer posteriorly, a few yellowish laterally. Eight short humeral

bristles black; 7 posthumeral, 5 presutural, yellowish; 12 black and 4 yellowish supraalar; 7 black postalar; 7 posterior and 3 weaker anterior dorsocentral, black. Pleura and coxae largely black with reddish areas; densely grayish pollinose; hairs and bristles yellowish white. Scutellum red; thinly grayish pollinose; 8 black marginal bristles.

Abdomen red, sides of tergites 2-7 black; thinly grayish pollinose. Hairs short, black, a few longer on the sides yellowish. Bristles black, 20-30-24 laterally on 1-3. Sternites yellowish red; thinly grayish pollinose; fine erect hairs yellowish becoming shorter apically. Genitalia red; hairs mostly black, on the hypandrium golden with the apical fringe brown (figs. 205, 206, 207).

Legs red; basal anterior half and basal posterior 4/5 of fore, anterior basal 4/5 of middle, and hind femora except narrow apex, black. Hairs yellowish, blackish dorsally on tibiae and tarsi. Bristles on fore and middle legs yellowish, partly black on dorsum of tibiae; mostly black on hind legs. Claws black, base reddish; empodia and pulvilli reddish.

Wings hyaline, base of axillary cell and the axillary lobe, white; veins brown; anterior crossvein at 30/72 length of discal cell; posterior cells 1 and 4 broadly open; anal cell narrowly open.

FEMALE. Length 25 mm. Antennal segment 1 all yellowish. Mesonotal bristles yellowish except 3-4 of the dorsocentrals black; 4 scutellar bristles yellowish and 4 brownish. Abdominal bristles yellowish, shorter, and less numerous; apical spines brown. Posterior dorsal surface of hind femora reddish; leg bristles all yellowish. Wings all hyaline; anterior crossvein at 30/75 length of discal cell.

DISTRIBUTION. BRITISH COLUMBIA: Lytton, 14 August 1969 (E. M. Fisher) EF. CALIFORNIA: Tulare County to Siskiyou County, in the Sierras at elevations of 6000 feet and higher; July to September. One record from a low elevation: Monterey County, Bradley, 18 July 1956, OSU. WASHINGTON: Friday Harbor, 10 August 1939 (R. W. Dawson) USNM; Lopez Island, 27 August 1957 (A. and H. Dietrich) CU; Spanaway, 8 August 1934 (S. E. Crumb, Jr.) JW; these areas are at or near sea level.

Structurally there is not much difference between S. bradleyi and S. neglectus; as you go north the bristles and abdominal hairs are yellowish but the black mesonotal hairs persist. In California, S. bradleyi was collected on the ground or on rocks and S. neglectus on sage brush, east of the Sierras at elevations of 4000 feet or less.

PREY. Powell and Stage (1962) list the honey bee and a noctuid as prey.

Scleropogon cinerascens (Back)
(Figures 232-235.)

Stenopogon (Scleropogon) cinerascens Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 208. Type, male, Brownsville, Texas (July 29), Brooklyn Institute, now USNM.

Stenopogon cinerascens Bromley, 1934, Annals Entomol. Soc. Amer., vol. 27, p. 97. Reports from Texas: Floresville, July 15, 1932 (S. E. McGregor) in apiary in mesquite pasture; Kingville, July 6-7 (Hull); Odessa, July (Hull); Pearsall, August 13, 1932 (S. E. M.).

MALE. Length 18 mm. Head black, gibbosity largely yellowish; densely white pollinose. Hairs and bristles white. Antennal segments 1-2 yellowish, 3 brown, style reddish; hairs white; segments 21-16-45-26, sensory area 16, in length (fig. 232).

Mesonotum yellowish red, divided central stripe and intermediate stripes black; densely white pollinose obscuring the ground color. Hairs white, semirecumbent, and subequal in length to antennae 2, a few longer laterally and posteriorly. Bristles white; 5 weak humeral; 3 posthumeral; 3-4 presutural; 6 supraalar; 5 postalar; 5 posterior and 3 anterior dorsocentral. Pleura and coxae mostly reddish, densely white pollinose; hairs and bristles white. Scutellum reddish; white pollinose, 6 white marginal bristles.

Abdomen brown; sides of tergite 1 and incisures of 2-7 reddish; densely, grayish, white pollinose. Hairs short white; bristles white, 6-14-12 laterally on 1-3. Sternites brown, broad reddish at incisures; hairs white, long erect on 1-2. Genitalia reddish, upper forceps darker; hairs white (figs. 233, 234, 235).

Legs brown, white pollinose; venter of fore femora, broad base and apex of middle, narrow base and apex of hind femora, and base of all tibiae, reddish. Hairs and bristles white. Claws black, base reddish; pulvilli white; empodia reddish.

Wings hyaline, short, and extending to apex of tergite 4; veins light brown; anterior crossvein at 21/49 length of discal cell; posterior cells 1 and 4 closed, the petioles subequal to length of anterior crossvein; anal cell closed at wing margin.

FEMALE. Length 21 mm. Face all reddish; antennae reddish, segments 21-16-45-30, sensory area 14, in length. Thorax greased; black mesonotal areas clearly defined; pleura and coxae reddish, a black spot below on sternopleura. Abdomen greased; sternite 1, sides and incisures of 2-7, reddish; apical spines red. Posterior side and venter of all femora and a dorsal anterior streak on fore femora, reddish.

DISTRIBUTION: TEXAS: Floresville (see above) 2 males, JW; Hidalgo County: 2 July, 9 August 1933 (S. W. Bromley) 2 males, 2 females, CU, USNM; 47 miles W. of Sheffield, 10 July 1936 (J. D. Beamer, D. R. Lindsay) 1 male, 1 female, JW; Starr County: 23 July 1933 (S. W. Bromley) 1 female, USNM; Three Rivers, 27 June 1938 (R. H. Beamer) 1 male, USNM.

Scleropogon coyote (Bromley).
(Figures 208-211.)

Stenopogon coyote Bromley, 1931, Annals Entomol. Soc. Amer., vol. 24, p. 429. Types, male and female, near Lander,

Wyoming, 5000-8000', July (Roy Moodie), OSU. Paratypes: Arizona, Flagstaff, June 4; Colorado, Garden of the Gods, Colorado City, July (E. S. Tucker), Poncho Springs, July 7, 13, 1898, Salida, July 16, 1898; New Mexico, Las Cruces, May (Cockerell); Wyoming, 40 miles N. of Lusk, July 1895.

Stenopogon coyote Adisoemarto, 1967, Quaestiones Entomol., vol. 3, p. 23, fig. 11 (side view of head), figs. 150-151 (wings), and note.

MALE. Length 15 mm. Head black, grayish white pollinose. Hairs and bristles yellowish white, on frons and ocellar tubercle, yellowish. Antennal segments 1-2 yellowish, 3 and style black; hairs white; segments 19-15-45-20, sensory area 15, in length (fig. 208).

Mesonotum black, humeri and postalar calli yellowish; gray pollinose, divided central stripe brown. Hairs erect yellowish, anteriorly as long as antennae 1; a few longer white hairs posteriorly. Bristles yellowish; 8 short humeral; 7 posthumeral; 5 presutural; 8 supraalar; 7 postalar; 6 posterior and 3 anterior dorsocentral. Pleura and coxae black; grayish white pollinose; hairs and bristles white. Scutellum black; gray pollinose; 9 white marginal bristles.

Abdomen brownish black becoming brownish apically; densely grayish white pollinose. Hairs white; bristles white, 7-14-7 laterally on tergites 1-3. Sternites brown with yellowish margins and spots; thinly white pollinose; hairs erect white on 1-6 gradually becoming shorter apically. Genitalia yellowish; hairs yellowish (figs. 209, 210, 211).

Femora: posterior side extending to middle of dorsum and a lower streak on anterior side of fore, anterior side extending to dorsum basally and covering apical half of posterior side on middle, and hind except venter, brown; extreme tips and remainder yellow. Tibiae brown, fore and middle ones yellowish basally. Tarsi yellowish, hind metatarsi brown. Hairs and bristles yellowish white. Claws black, base reddish; pulvilli yellowish; empodia reddish.

Wings hyaline; veins brown; anterior crossvein at 25/55 length of discal cell; posterior cell 1 open equal to half the length of the anterior crossvein; posterior cell 4 closed, petiole as long as anterior crossvein; anal cell narrowly open.

FEMALE. Length 15 mm. Frons golden gray pollinose; antennal segment 2 brown. Mesonotum golden gray pollinose. Lateral margins of tergites 1-5 yellowish in ground color, 1-6 grayish white pollinose, 7-8 bare and brown to reddish; sternites yellowish; apical spines brown. Anterior crossvein at 28/60 length of discal cell; posterior cell 1 narrowly open; petiole of posterior cell 4 about half the length of anterior crossvein.

The first posterior cell was closed in 23 specimens and open in 16, varying from open equal to half the length of the anterior crossvein, to closed with the petiole about 2/3 length of anterior crossvein.

DISTRIBUTION: Alberta, Arizona, Colorado, Missouri, Montana, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming; mostly taken in June and July.

PREY. Lavigne (1963) records several species of grasshoppers as prey and gives other notes on its habits and oviposition.

See note under S. indistinctus.

Scleropogon dispar (Bromley).
(Figures 236-239.)

Stenopogon dispar Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 306. Types, male and female, Patagonia, Arizona, August 21, 1935 (E. I. and R. H. Beamer) UK.

MALE. Length 20 mm. Head black, a reddish spot on sides of face below; white pollinose, the frons brown. Hairs and bristles white, upper occipitals reddish to brown, on frons and ocellar tubercle brown. Antennae brown, base of segments 1-2, apical half of 3 and style, reddish; hairs brown; segments 21-15-54-25, sensory area 13, in length (fig. 236).

Mesonotum red, divided central stripe and intermediate stripes, black; quite densely yellowish gray pollinose. Hairs golden, semierect, and subequal in length to antennae 2, longer laterally, posteriorly brown. Bristles brown; 7 weak humeral; 3 posthumeral; 4-5 presutural; 10 supraalar; 5 postalar; 5 posterior and 2 anterior dorsocentral. Pleura and coxae black with reddish areas especially below on pleura and middle coxae; grayish pollinose; hairs and bristles white, on hypopleura brownish. Scutellum black; grayish pollinose; 5 brown marginal bristles.

Abdomen dark brown, anterior margin of tergite 2 and posterior margins of 2-5, reddish; dorsum thinly and the sides densely, white pollinose. Hairs short, brown; bristles brown, 6-7-5 laterally on 1-3. Sternites brown; white pollinose; hairs white, long erect on 1-2. Genitalia brown, lower forceps and margins of hypandrium, reddish; hairs brown, golden brown at apex of hypandrium (figs. 237, 238, 239).

Fore legs reddish, femora with posterior and anterior brown streaks; middle legs brown, broad base of tibia and tarsal segments, reddish; hind legs brown, narrow base of tibia and broad base of tarsal segments, reddish. Hairs brown; bristles brown, part reddish on fore tibiae and tarsi. Claws black, base reddish; pulvilli yellowish; empodia reddish.

Wings light brown; basal half of axillary cell and the axillary lobe, white. Veins dark brown; anterior crossvein at 28/66 length of discal cell; posterior cells 1 and 4 closed, petioles subequal to length of anterior crossvein; anal cell closed and very short petiolate.

FEMALE. Length 22 mm. Antennal hairs yellowish. Posterior bristles on mesonotum mostly yellowish; hypopleurals white; 6 yellowish scutellar bristles. Dorsum of tergites 2-5 broadly and 6-8 narrowly but not reaching posterior margins, reddish; sides of 1-6 densely white pollinose, 7-8 bare; hairs and bristles yellowish; sternites mostly brown and

densely white pollinose; apical spines brown. Hairs of legs white; bristles yellowish, a few at apex of hind tibiae and on hind tarsi, brown. Wings very dilute brown; basal, anal, and axillary cells and axillary lobe, nearly hyaline; anterior crossvein at 36/70 length of discal cell.

DISTRIBUTION: ARIZONA: Cochise County: Chiricahua Mountains, 15, 16 August 1959 (D. J. and J. N. Knull), 1 male, 1 female, OSU, JW; Chiricahua Mountains, Jhus Canyon, 11 August 1967 (E. I. Schlinger) winged grasshopper prey, 1 female, UCR; Pinery Canyon, 10 miles NW. of Onion Saddle, 16 August 1965 (G. R. Ballmer) 1 male, UCR; Cottonwood Creek, 4900', 32 miles NE. of Douglas, 31 August 1965 (K. Brown) 1 female, UCR; Skeleton Canyon, 12 August 1965, (J. L. Bath) 1 male, UCR. Gila County: 5 miles S. of Carrizo, Highway 60, 12 August 1948 (Itol J. Wilcox), 2 males, JW. Pima County: Santa Rita Mountains, Madera Canyon, 3000', 19 August 1962 (Itol J. Wilcox) 1 male, JW; 10 August 1961 (Eric Fisher), 1 female, EF. Santa Cruz County: Patagonia (see type data); Ruby, 13 July 1940 (D. E. Hardy) 1 male, USNM.

See note under S. huachucanus.

Scleropogon duncani (Bromley).
(Figures 212-215.)

Stenopogon duncani Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 307. Types, male, Silver City, New Mexico, June 24, 1933, female, June 18, 1933 (R. T. Kellogg) CAS. Paratypes: Arizona, C. U. Lot 35; Ajo, August 26, 1927 (J. C. Bradley); Chiricahua Mountains, June (D. K. Duncan) no. 30; Florence, June 24, 1932 (D. K. Duncan); Tempe (D. K. Duncan). California, Clark Valley, Colorado Desert, May 2, 1932 (H. G.). New Mexico, Beck Hall, Cambray, June 1931; Silver City, June 24, 1933 (R. T. Kellogg).

MALE. Length 23 mm. Head black; densely white pollinose, frons yellowish. Hairs and bristles white. Antennae black; hairs white; segments 32-18-90-21, sensory area 27, in length (fig. 212).

Mesonotum black, humeri yellowish; densely gray pollinose, divided central stripe brown. Hairs white, semierect, anteriorly as long as antennae 2. Bristles white; 9 short humeral; 6 posthumeral; 5 presutural; 14 supraalar; 5 postalar; 7 posterior and 1 anterior dorsocentral. Pleura and coxae black; white pollinose; hairs and bristles white. Scutellum black; white pollinose; 7 white marginal bristles.

Abdomen black, posterior margins of tergites 2-5 yellowish; gray pollinose. Hairs white; bristles white, 9-14-11 on tergites 1-3 laterally. Sternites black, anterior margin of 2 and posterior margins of 2-5 yellowish; gray pollinose; hairs white, long erect on 1-3. Genitalia yellowish red; hairs yellowish (figs. 213, 214, 215).

Legs yellowish; basal half of anterior side and basal 2/3 of posterior side of fore and middle, and hind femora except

narrow apex, black; tip of fore, apical half of middle and all of hind tibiae, black; hind tarsi black. Hairs white; bristles yellowish; claws black, base reddish; pulvilli yellowish; empodia reddish.

Wings hyaline; veins black; anterior crossvein at 25/62 length of discal cell; posterior cell 1 broadly open; posterior cell 4 closed, petiole subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 21 mm. Abdominal tergites 7-8 bare of pollen; 8 largely reddish; apical spines reddish brown. Only metatarsus of hind tarsi distinctly black. Anterior crossvein at 27/55 length of discal cell.

DISTRIBUTION. Arizona, California, Nevada, New Mexico, Utah, and Mexico. In the last, Baja California del Norte: 20 miles N. and 4 miles S.,of San Felipe, 8 June 1968 (N. Lappla, J. M. Davidson, J. Bigelow, M. Bentzien, W. Fox, S. Williams, M. A. Cazier) low sandy hills, sand dunes, Prosopis, Lophoceris, and Franseria, ASU. Baja California Sur: Coyote Cove, Concepcion Bay, 1 October 1941 and San Pedro, 7 September 1941 (Ross and Bohart) CAS. Sonora: Martin (1968a) gives several localities; 39 miles N. of Puerto Penasco, 4 June 1968 (N. Lappla, J. Bigelow, J. M. Davidson, M. A. Cazier) on sand hills, Hilaria rigida and dead individuals of Lycium sp., ASU; 4 miles S. of Santa Ana, 28 August 1966 (Eric Fisher) EF. A slender desert species usually appearing from April to June but in Arizona where summer rains are frequent, it occurs from April to September. A few have been taken in California in August where summer storms are infrequent.

The ground color of the late specimens can be largely reddish. Reddish areas include the face and antennal segments 1-2; mesonotum except the central and intermediate stripes; pleura, coxae, and scutellum; broad incisures of the basal abdominal segments and the apical ones largely; and the broad venter of the femora.

The long third antennal segment, slender abdomen, and less robust femora, readily separate it from the other species. It could be transferred to Ospriocerus Loew as, although the style is slender, in well preserved specimens the apex is truncate and the apical bristle arises from a pit.

Scleropogon floridensis (Bromley).
(Figures 216-219.)

Stenopogon floridensis Bromley, 1951, Amer. Mus. Novitates no. 1532, p. 6. Type, male, Dade City, Florida, July 17, 1938 (W. Stehr) USNM. Paratopotype, same data.

MALE. Length 20 mm. Head black; densely grayish white pollinose, frons brownish. Mystax black, oral row and several in the middle above whitish; hairs on frons and ocellar tubercle and upper occipitals, black; lower occipitals yellowish; beard and hairs on palpi and proboscis, white. Antennae brown, style reddish; hairs black; segments 28-19-68-

16, sensory area 26, in length (fig. 216).

Mesonotum black, humeri and postalar calli reddish; thinly grayish pollinose. Anterior hairs black, semierect, and as long as antennae 2; longer posteriorly and laterally. Bristles black; 4 short humeral; 5 posthumeral; 5 presutural; 4 yellowish and 1 black supraalar; 4 yellow postalar; 4 posterior and 1 anterior dorsocentral, black. Pleura and coxae densely grayish yellow pollinose; hairs and bristles white. Scutellum black; densely grayish pollinose; 5 black marginal bristles.

Abdomen yellowish red; tergite 1, base of 2, black; sides and apical 2/5 of 6 and all of 7-8, brown; thinly grayish pollinose. Hairs short golden, a few black laterally on 6-8. Bristles golden, 6-9-9 laterally on tergites 1-3. Sternites yellowish red, 6-7 laterally and 8, brown; hairs white, long erect on 1-2, shorter apically, black on apex of 6 and all of 7-8. Genitalia black; hairs black, golden at apex of hypandrium (figs. 217, 218, 219).

Femora black; venter, apex, and a posterior streak on fore, venter and apex of middle, and narrow apex of hind, red. Tibiae and tarsi yellowish red. Hairs black, white below on femora and above at base of hind femora. Bristles black, a posterior row on fore tibia and 1 each on fore and middle metatarsi, golden; 5 weak black bristles below on fore femora. Claws black, base reddish; pulvilli and empodia, reddish.

Wings brown; veins brown; anterior crossvein at 37/75 length of discal cell; posterior cell 1 broadly open; posterior cell 4 and anal cell, closed at wing margin.

FEMALE. Length 23 mm. Mystax golden, a few short fine black hairs on sides and above. Antennae black, hairs black, segments 30-20-82-19, sensory area 30, in length. Presutural bristles golden; 7 golden and 1 black scutellar bristles. Dorsum of abdominal tergites 2-4 and base of 5 largely, red; remainder black; 1-6 thinly grayish pollinose, denser on sides; 7-8 bare of pollen; apical spines black. Femora white haired except dorsum apically of fore and middle, and apical 1/3 of hind, black; bristles black, fore and middle tibiae and tarsi with golden bristles posteriorly. Wings slightly lighter brown; anterior crossvein at 35/82 length of discal cell; posterior cell 4 and anal cell short petiolate.

DISTRIBUTION. FLORIDA: Ft. Mead, 18 August 1930 (R. H. Beamer, L. D. Tuthill) 1 male, 1 female, JW; Hillsboro County: 24-31 August 1946 (Mary D. Neiswender) 1 male, 1 female, USNM; Orange County: 30 August 1949 (O. D. Link) at Citrus sinensis, S. P. B. Acc. no. 100281, female, FSCA.

See note under S. subulatus.

Scleropogon haigi Wilcox, new species.
(Figures 240-243.)

MALE. Length 13 mm. Head black; densely grayish white pollinose, the frons brownish. Gibbosity rather weak and extends 2/3 distance from oral margin to antennae. Hairs and bristles white, on frons and ocellar tubercle brownish.

Antennal segments 1-2 and style brown, 3 black, the base yellowish; hairs yellowish; segments 21-17-46-19, sensory area 16, in length (fig. 240).

Mesonotum black; grayish golden pollinose, the divided central stripe brown. Sparse hairs white, semierect anteriorly and as long as antennae 1. Bristles white; 4 humeral; 3 posthumeral; 4 presutural; 8-9 supraalar; 4 postalar; 5 posterior and 5 anterior dorsocentral. Pleura and coxae black; grayish golden pollinose; hairs and bristles white. Scutellum black; gray pollinose; 6 white marginal bristles.

Abdomen black; grayish pollinose, laterally light brown and narrow posterior margins white. Hairs short, sparse, white; bristles white, about 5 each laterally on tergites 1-3. Venter brown; grayish pollinose; hairs white, long erect on 1-3. Genitalia brown; hairs white (figs. 241, 242, 243).

Femora black; fore at apex and a narrow streak on ventral apical half reddish. Tibiae and tarsi brown, dorsum of fore tibiae reddish. Hairs and bristles white, a few short black bristles below on hind tarsi. Claws black, reddish basally; pulvilli light brown; empodia brown.

Halteres yellowish. Wings hyaline basally, marginal cell and apical fourth grayish brown; veins brown; anterior crossvein at 25/61 length of discal cell; posterior cells 1 and 4 closed, petiole of 1 about 5 times length of anterior crossvein and 4 about 2 times; anal cell closed at wing margin.

FEMALE. Length 15 mm. Pollen of face with a golden tinge and frons brown. Humeri red in ground color; mesonotal pollen golden; hairs yellowish and shorter than in male. Abdominal tergites 1 and posterior margins of 2-4 red in ground color; segments 7-8 bare of pollen; apical spines black. Apex and venter of all femora and dorsum of all tibiae red.

HOLOTYPE. Male, 10 miles E. of Nogales, Arizona, 2 September 1957 (T. R. Haig) UCD.

ALLOTYPE. Female, Madera Canyon, Pima County, Arizona, 28 September 1963 (V. L. Vesterby) UCD.

PARATYPES. ARIZONA: Cochise County: 2 females, 18 miles E. of Douglas, 5 September 1958 (P. D. Hurd) Eriogonum, CIS. Pima County: 1 male, 28 October 1925 (Chas. Waughtal) USNM; 2 males, Gates Pass, 11 September 1966 (D. Graham) UCD; 1 male, 1 female, 2 miles E. of Robles Pass, 11 September 1966 (D. Graham) UCD; 1 female, Santa Rita Mountains, Madera Canyon, 4000', 14 September 1962 (Itol J. Wilcox) JW; 1 female, Santa Rita R. R., 19 September 1935 (F. H. Parker) USNM; 1 male, 1 female, same data as allotype and 17 September 1963, UCD. Santa Cruz County: 1 male, Madera Canyon, Santa Rita Mountains, 19 September 1961 (R. L. Westcott) UI; 1 male, 10 miles N. of Nogales, 4 October 1958 (T. R. Haig) UCD; 6 males, 6 females, 10 and 11 miles E. of Nogales, 2 September 1957, 14 September 1966 (D. Graham, T. R. Haig, R. W. Thorp) UCD; 1 male, near Patagonia, 19 September 1958 (H. V. Weems, Jr.) FSCA, 1 male, 1 female, 10 miles SW., 13 September 1958 (P. D. Hurd) Croton, CIS; 1 female, Pena Blanca, 6 October 1967 (K. P. L. & L.) ASU; 21 males, 15 females, Pena Blanca and 3 miles E. (Calabasas Camp Ground) 20, 22 September 1966 (Itol J. and J. Wilcox) JW. MEXICO:

Durango: 1 male, 15 miles W. of El Salto, 30 October 1965 (G. E. and A. S. Bohart) USU. Sinaloa: 1 female, 10 miles W. of Concordia, 30 October 1965 (G. E. and A. S. Bohart) USU; 16 males, 6 females, 23 and 33 miles N. of Los Mochis Junction and Highway 15, 14 September 1970 (E. M. Fisher) EF; 3 males, Mazatlan, 28 October 1965 (G. E. and A. S. Bohart) Patalostemon, USU; 1 male, Rio Fuerte at Highway 15, 11 miles N. of Los Mochis Junction, 14 September 1970 (E. M. Fisher) EF. Sonora: 1 male, 20 miles W. of Alamos, 10 September 1964 (Eric Fisher) EF; 1 female, Pocitas Casas, 25 October 1965 (G. E. and A. S. Bohart) near Crepis, USU; 1 female, 6 miles N. of Navojoa, 15 September 1970 (E. M. Fisher) EF; 25 males, 14 females, Nogales, 11 to 28 September 1965 (A. E. Michelbacher) CIS.

Some of the females are yellowish red except for the black central stripe and intermediate spots on the mesonotum, faint dark spots on the sides of abdominal tergites 2-7, and brown spots on the anterior side of all femora and posteriorly on the fore femora. These appear to belong to S. kelloggi, but the dark areas and the lateral bristles on tergites 1-3, will readily separate S. haigi.

Similar to S. oaxacensis Martin (1968a), the males differ from S. haigi as follows: antennal and mesonotal hairs largely black; mesonotal bristles partly black; leg bristles largely black; hypandrium with short wide apical projections; axillary cell and lobe white, petioles of posterior cells 1 and 4 about 1 1/2 times the length of the anterior crossvein. The short petiole of posterior cell 1 is the best character to separate the females as most of the others do not apply; some of the females have the abdomen and legs largely reddish with only a black anterior stripe on the femora. Specimens from the following localities: Mexico: Oaxaca; 8 and 9 miles W. of Tehuantepec, 14, 28 July 1963, 1970 (E. Fisher, P. Sullivan) 9 males, 3 females, EF; 40 km. and 5 miles W. of Tequisixtlan, 19, 28 July 1963, 1970 (E. Fisher, P. Sullivan), 4 males, 1 female, EF.

At Calabasas Campground these flies were collected in a meadow of rather thick grass, two to three feet high. They were flying near the ground or were resting on the ground or lower grass stems. They made a high pitched buzz and could not always be seen in the high grass; several were collected by putting the net over the buzz. Scleropogon picticornis Loew was collected the same day resting on bunch grass about a foot high on the adjacent hillsides, 50 to 200 feet higher.

Named in honor of T. R. Haig, who collected the first specimens of this species to come to my attention and who has collected many other interesting Asilidae, especially in Nevada.

Scleropogon helvolus Loew.
(Figures 244-247.)

Scleropogon helvolus Loew, 1874, Berlin. Ent. Zeitschr., vol. 18, p. 355. Type, male and female, Texas, MCZ.
Stenopogon (Scleropogon) helvolus Back, 1909, Trans. Amer.

Entomol. Soc., vol. 35, p. 208, pl. III, fig. 3. Description; reports from Dallas, Texas and Sedgwick County, Kansas, August (E. S. Tucker). Bromley (1934) reports from Texas: Brownwood, September 13 (R. H. P.); Spur, September 21, 1932 (Bromley and O'Dowd).

MALE. Length 27 mm. Head yellow; frons, occiput except lower part, and proboscis, black; densely white pollinose. Hairs and bristles white, on frons and ocellar tubercle, yellowish. Antennal segments 1-2 yellow, 3 and style brownish black; hairs white; segments 28-20-54-38, sensory area 12, in length (fig. 244).

Mesonotum yellow; central and intermediate stripes black; densely yellowish pollinose. Hairs golden, semierect, anteriorly subequal in length to antennae 2. Bristles yellowish; 8 short humeral; 5 posthumeral; 5 presutural; 8 supraalar; 4 postalar; 5 posterior and 2 weak anterior dorsocentral. Pleura and coxae yellow, pleura and middle coxae with black spots; densely yellowish pollinose; hairs and bristles white. Scutellum yellow; yellowish pollinose; 9 whitish marginal bristles.

Abdomen yellow with indications of black on dorsum of tergites 5-7; densely whitish pollinose. Hairs short white; bristles white, 6-9-6 laterally on tergites 1-3. Sternites yellow with indications of some black on 5-7; densely white pollinose; hairs white, long erect on 1-3. Genitalia yellowish; hairs yellowish (figs. 245, 246, 247).

Legs yellowish, whitish pollinose; posterior upper side of fore and middle femora extending nearly to apex and hind femora with the anterior side extending on the dorsum, black; hind tibiae and tarsi brownish. Hairs white; bristles yellowish white; claws black, base reddish; pulvilli yellowish; empodia reddish.

Wings hyaline; veins light brown; anterior crossvein at 33/73 length of discal cell; posterior cells 1 and 4 closed, petioles subequal to length of anterior crossvein; anal cell closed at wing margin.

FEMALE. Length 30 mm. Greased. Ground color of mesonotum brick red, the stripes black; pleura same color with a black spot on mesopleura and below on sternopleura. Abdomen similar with dorsum of apical segments brown; narrow apex of tergite 6 and all of 7-8, bare of pollen; apical spines brown.

When a drop of alcohol is placed on well preserved specimens, the ground color is yellowish red.

DISTRIBUTION. Colorado (James 1941); Kansas; Nebraska (Jones 1907); Oklahoma, South Dakota, and Texas; June to September. Most of the specimens examined were from Kansas and Oklahoma. The male was described from a specimen collected at Forestburg, Texas, 23 July 1941 (L. H. Bridwell) USNM.

Scleropogon similis Jones (1907) appears to be the same as S. helvolus Loew while S. helvolus Jones (1907) appears to be S. picticornis Loew. Specimens have been seen from Nebraska but are not available now. See note under S. indistinctus.

Scleropogon huachucanus (Hardy).
(Figures 248-251.)

Stenopogon huachucanus Hardy, 1942, Jour. Kansas Entomol. Soc., vol. 15, p. 57, fig. 2a. Types, male and female, Huachuca Mountains, Arizona, July 18, 1938 (Jean Russell, R. H. Beamer) UK. Paratypes, 1 male, 1 female, same data, UK.

MALE. Length 20 mm. Head black, sides of face below reddish; densely grayish pollinose, frons brownish. Hairs and bristles yellowish; on frons, ocellar tubercle and upper occiput, reddish. Antennal segments 1-2 reddish, 3 and style black; hairs yellow; segments 21-19-60-20, sensory area 15, in length (fig. 248).

Mesonotum black; humeri, area behind humeri, posterior lateral margins, and postalar calli, reddish; grayish golden pollinose, divided central stripe brown. Hairs golden brown, anteriorly short semirecumbent. Bristles yellowish red; 6 short humeral; 3 posthumeral; 4 presutural; 9 supraalar; 5 postalar; 7 posterior and 2 anterior dorsocentral. Pleura black with reddish spots, coxae mostly reddish; densely grayish pollinose; hairs and bristles golden. Scutellum black, margin reddish; grayish pollinose; 7 reddish marginal bristles.

Abdomen reddish; tergites 1-2 basally and sides of 2-3, black; yellowish gray pollinose. Hairs short golden; bristles golden, 6-7-5 laterally on tergites 1-3. Sternites red; white pollinose; hairs yellowish, erect on 1-2. Genitalia yellowish red; hairs yellowish (figs. 249, 250, 251).

Legs yellowish red; fore femora with narrow dorsal stripe, middle with anterior side, and hind with anterior side extending on dorsum basally, black. Hairs and bristles reddish. Claws black, base reddish; pulvilli and empodia, reddish.

Wings hyaline; veins brown; anterior crossvein at 27/64 length of discal cell; posterior cells 1 and 4 closed, petioles as long as anterior crossvein; anal cell closed at wing margin.

FEMALE. Length 19 mm. Hairs and bristles of head white; on frons and ocellar tubercle, golden; on antennae white. Mesonotal bristles yellowish white; 6 white scutellar bristles. Sides of abdominal tergites 1-8 black; 1-6 grayish pollinose, dense on lateral margins; 7-8 bare; apical spines brown. Hairs and bristles of legs white.

Other females have tergites 7-8 all reddish, darker than the yellowish red on the basal segments. The females are similar to females of S. dispar Bromley. The darker femora and tibiae, dense white pollen laterally on the abdominal tergites and very thin dorsal pollen, darker mesonotal bristles, and darker wings, serve to separate the females of S. dispar from S. huachucanus.

DISTRIBUTION. Arizona: Cochise County: Chiricahua Mountains, mouth of Pinery Canyon, 1 August 1967 (Saul and Suzy Frommer), 1 female, UCR; Huachuca Mountains, Brooklyn Mus. Cat. no. 582, 2 females, USNM; Huachuca Mountains, 18 July 1938 (R. H. Beamer, Jean Russell), 1 male, 1 female,

USNM; Tombstone, 13 August 1940 (E. S. Ross) 1 male, CAS.

Scleropogon indistinctus (Bromley).
(Figures 254-257.)

Stenopogon indistinctus Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 308. Types, male and female, White Mountains, Arizona, August 1930 (D. K. Duncan) CAS. Paratypes, same data; Concho, Arizona, August 18, 1934 (A. E. Pritchard); Kenton, Oklahoma, June 27, 1933 (A. E. Pritchard).

Stenopogon indistinctus Martin, 1968a, Proc. Calif. Acad. Sci., vol. 35, p. 388. Notes on the variations including specimens from Mexico, Zacatecas.

MALE. Length 21 mm. Head black; grayish white pollinose, frons yellowish gray. Hairs and bristles yellowish white, oral bristles of mystax longer than the upper ones. Antennal segment 1 yellowish, 2 brown, 3 and style black; hairs yellowish white; segments 23-17-48-25, sensory area 21, in length (fig. 254).

Mesonotum black, humeri and postalar calli yellowish; yellowish gray pollinose, divided central stripe and intermediate stripes brown. Hairs yellowish white, anteriorly subequal in length to antennae 2. Bristles yellowish white; 10 short humeral; 7 posthumeral; 6 presutural; 10 supraalar; 7 postalar; 8 posterior and 6 anterior dorsocentral. Pleura largely black, coxae black, reddish posteriorly; densely gray pollinose; hairs and bristles white. Scutellum black, margin reddish; yellowish pollinose; 10 whitish marginal bristles.

Abdomen black; anterior and posterior margins of tergites 2-7, lateral margins of 4-7 and all of 8, yellowish; gray pollinose. Hairs and bristles yellowish white; 7-15-13 lateral bristles on 1-3. Sternites yellow; whitish pollinose; hairs erect yellowish, long on 1-4. Genitalia yellow; hairs yellowish (figs. 255, 256, 257).

Legs yellowish; fore femora with narrow anterior stripe on basal 2/3 and wider posterior stripe, middle and hind with broad dorsal stripe extending on the anterior side, black. Hind tibia and metatarsi brownish. Hairs and bristles yellowish white, 15 bristles below on fore femora. Claws black, reddish basally; pulvilli yellowish; empodia reddish.

Wings hyaline; veins brown; anterior crossvein at 22/63 length of discal cell; posterior cell 1 closed, petiole half the length of the anterior crossvein; posterior cell 4 closed, petiole subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 22 mm. Bristles of mystax gradually shortening from oral margin to upper part; antennal segments 1-2 yellowish red; segments 22-16-50-28, sensory area 22, in length. Broad lateral margins and small area behind humeri reddish; pleura and coxae reddish; mesopleura with small spot and sternopleura below, black. Abdomen reddish; tergite 1 basally, 2-3 with dorsal spots not reaching any margins, and

4-8, reddish brown; apical spines brown. Wings with reddish tinge; anterior crossvein at 28/62 length of discal cell, petioles of posterior cells 1 and 4 about half the length of the anterior crossvein.

The description is made from the type; the female is greased. The first posterior cell varies from being open equal to half the length of the anterior crossvein, to closed with the petiole half the length of the anterior crossvein. It is very similar to S. coyote Bromley but larger; however in Arizona, New Mexico, and Oklahoma it is difficult to separate S. coyote from S. indistinctus.

Bromley (1931) included a paratype of S. coyote from Flagstaff, Arizona. The specimens from Coconico County, Arizona (Flagstaff and Grand Canyon) have been identified as S. indistinctus. Bromley (1937) included paratypes of S. indistinctus from Kenton, Oklahoma. Part of the specimens from the Oklahoma panhandle, Cimarron County (Kenton and other localities) have been identified as S. helvolus Loew.

DISTRIBUTION: Arizona, Colorado, New Mexico, Oklahoma, Texas, Utah, and Mexico at the locality of Zacatecas, (Martin, 1968a), May to August.

Other specimens identified from Mexico are as follows: Coahuila, 29 miles S. of Saltillo, 7 August 1968 (J. Bigelow, M. A. Cazier) ASU, these specimens are quite normal; Nuevo Leon, 3 miles N. of Linares, 28 June 1964 (Eric Fisher) 1 male, EF. This is almost all yellowish red and might represent a new species but is placed here tentatively.

Big color variations have been noted in other species, for example, S. neglectus Bromley. A specimen from Montana is almost all yellowish red and this is about the northern limit of the species. A specimen from Arizona, Coconino County, Kaibab National Forest, 8000', 15 July 1961 (R. D. Ward) 1 male, EF, is almost all black. Its locality is about the southern limit of the species.

Similar variations have been noted on other species. Undoubtedly some of this color variation is due to the age of the specimen when captured but this is not always the case.

Scleropogon kelloggi (Wilcox).
(Figures 256-259.)

Stenopogon kelloggi Wilcox in Bromley, 1937, Jour. New York Entomol. Soc., vol. 45, p. 307. Types, male and female, Silver City, New Mexico, IX-16 '32 (R. T. Kellogg) CAS. Paratypes: same data, 25-26 October 1935 and Grant County, New Mexico, 24 September 1933 (R. T. Kellogg); base of Pinal Mountains, Gila County, Arizona, October (D. K. Duncan).

MALE. Length 13 mm. Head black, oral cavity reddish; face and frons yellowish white, occiput gray, pollinose. Hairs and bristles yellowish. Antennal segment 1 reddish, 2 brown, 3 and style black; hairs yellowish; segments 25-16-54-17, sensory area 25, in length (fig. 256).

Mesonotum black, humeri and postalar calli in part, reddish; yellowish gray pollinose, divided central stripe brown. Hairs yellowish, erect, anteriorly about 2/3 length of antennae 2. Bristles yellowish; 10 short humeral; 4 posthumeral; 4 presutural; 9 supraalar; 4 postalar; 6 posterior and 5 anterior dorsocentral. Pleura and coxae black, hind coxae reddish; densely grayish yellow pollinose; hairs and bristles yellowish. Scutellum black, margin reddish; yellowish gray pollinose; 8 yellowish marginal bristles.

Abdomen yellowish red; sides of tergite 1, broad basal side of 2, and a small anterior lateral spot on 3, black; yellowish gray pollinose. Hairs yellowish recumbent, a few long on sides of 1-3; 7 yellowish lateral bristles on 1. Sternites yellowish red, 6 and base of 7 brownish; yellowish pollinose; hairs yellowish, erect on 1-3. Genitalia yellowish red; hairs yellowish (figs. 257, 258, 259).

Legs yellowish red; hairs and bristles yellowish; claws black, base reddish; pulvilli yellowish; empodia reddish.

Wings very lightly tinged with brown; veins brown; anterior crossvein at 13/35 length of discal cell; posterior cells 1 and 4 closed, petioles about two times as long as anterior crossvein; anal cell closed and short petiolate.

FEMALE. Length 14 mm. Face white pollinose; hairs and bristles white except those on the frons and ocellar tubercle. Coxal bristles white. Sides of tergite 1 and sides anteriorly of 2-6, black; 7-8 bare of pollen; apical spines reddish. Anterior crossvein at 15/43 length of discal cell.

Some of the specimens from Texas (Ft. Davis National Monument) have a small black spot posteriorly at the base of the fore femora.

DISTRIBUTION. Arizona, New Mexico, and Texas; August to October.

Scleropogon neglectus (Bromley).
(Figures 220-223.)

Stenopogon neglectus Bromley, 1931, Annals Entomol. Soc. Amer., vol. 24, p. 430. Types, male and female, near Lander, Wyoming, 5000-8000', August (Roy Moodie) OSU. Paratypes: same data; Idaho, Lewiston; Colorado, Creeds, 8844', August 1914 (S. J. Hunter); Wyoming, Yellowstone Park, Roaring Mountain, elevation 7500', July 25, 1923 (H. C. Severin); Oregon, Castle, September 2, 1923 (Carl Duncan); Utah, Across Salt Lake Desert, July 24, 1925 (Hall).

Stenopogon consanguineus Brown, 1929, Trans. Amer. Entomol. Soc., vol. 54, p. 303, pl. 20-23 (male and female genitalia).

Stenopogon neglectus Adisoemarto, 1967, Quaestiones Entomol., vol. 3, p. 22, figs. 54-55 (prothorax), figs. 213-217 (male genitalia), and note.

MALE. Length 24 mm. Head black; grayish white pollinose, frons light brownish. Hairs and bristles yellowish white, on frons and ocellar tubercle brownish, and on occiput yellow. Antennae black, segment 2 and the middle of 3 reddish; hairs

yellowish; segments 31-19-59-28, sensory area 12, in length (fig. 220).

Mesonotum black, humeri reddish; quite densely grayish pollinose. Anterior mesonotal hairs semierect golden and about 1/3 length of antennae 2, a few longer posteriorly and laterally. Bristles yellowish; 8 short humeral; 6 posthumeral; 5 presutural; 15 supraalar; 7-8 postalar; 9 posterior and 2 weak anterior dorsocentral. Pleura and coxae black, densely grayish pollinose; hairs and bristles yellowish white. Scutellum black, gray pollinose, 8 yellowish marginal bristles.

Abdomen black, grayish pollinose. Hairs short, recumbent, yellowish white. Bristles yellowish white, 8-17-15 on tergites 1-3. Venter black, gray pollinose; fine erect hairs white, long on 1-3. Genitalia black; hairs yellowish (figs. 221, 222, 223).

Femora black; fore with a dorsal anterior streak and the venter, and broad venter of middle, reddish. Fore and middle tibiae reddish, the dorsum brown; hind ones black with posterior reddish streak; tarsi reddish. Hairs and bristles yellowish white; claws black, base reddish; pulvilli and empodia, reddish.

Wings hyaline; veins dark brown; anterior crossvein at 38/72 length of discal cell; posterior cell 1 broadly open; posterior cell 4 and anal cell, narrowly open.

FEMALE. Length 27 mm. Hairs and bristles of head all yellowish white. Sides of tergite 6 and all of 7-8 bare of pollen; apical spines reddish.

A number of specimens have the incisures of the abdomen reddish or yellowish and specimens from eastern Washington and Montana have been seen with the abdomen almost all yellowish. Specimens from 15 miles south of Tulelake, California (Modoc County) have the dorsum of the abdomen reddish but it is obscured by quite dense pollen. These and other specimens from California were collected from sage brush, two to three feet high. See note under S. bradleyi.

DISTRIBUTION. Alberta, British Columbia, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Washington, and Wyoming; June to September. In California it only occurs east of the Sierras from Inyo County to Modoc County and in Oregon and Washington the records are all from east of the Cascades, except one, which is from Corvallis, Oregon.

PREY. Powell and Stage (1962) report Conoxoa species (Acrididae) as prey from Washington. Two specimens from California have short winged grasshoppers as prey, one a nymph.

Scleropogon picticornis Loew.
(Figures 260-263.)

Scleropogon picticornis Loew, 1866, Berlin. Ent. Ztschr., vol. 10, p. 26. Type, female, California, MCZ.
Stenopogon (Scleropogon) picticornis Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 209. Translation of original

description; reports specimens from following localities: Lance Creek, Wyoming, August 14, 1895; Custer and Piedmont, S. D. (J. M. Aldrich collection); Denver Highlands, August 18, MCZ; and a pair from California, July 30 (C. W. Johnson collection).

MALE. Length 24 mm. Head black, face below on the sides reddish; densely grayish white pollinose, frons light brown. Hairs and bristles yellowish, on frons and ocellar tubercle reddish brown. Antennal segments 1-2 red, 3 and style black; hairs yellowish; segments 32-23-68-34, sensory area 16, in length (fig. 260).

Mesonotum red, central and intermediate stripes black; densely grayish pollinose. Hairs golden, anteriorly semi-recumbent and as long as antennae 2, yellowish and longer posteriorly and laterally. Bristles yellowish; 9 short humeral; 6 posthumeral; 5 presutural; 17 supraalar; 7-8 postalar; 10 posterior and 6 anterior dorsocentral. Pleura and coxae mostly black, densely gray pollinose; hairs and bristles yellowish. Scutellum black, reddish laterally; gray pollinose; 10 yellowish marginal bristles.

Abdomen red; tergites, 2-3 except narrow anterior and broad posterior margins, sides of 4-6, and a central dorsal spot, black; quite densely yellowish gray pollinose with small anterior lateral bare spots on 2-7. Hairs yellowish; bristles yellowish, 9-12-10 laterally on 1-3. Sternites red; whitish pollinose; hairs yellowish, long erect on 1-4 and base of 5. Genitalia red; hairs golden (figs. 261, 262, 263).

Legs yellowish red; anterior spot on basal half and posterior stripe on basal 3/4 of fore, anterior basal 2/3 extending on dorsum at base of middle, and basal 4/5 except venter of hind, femora black; femora thinly grayish pollinose. Hairs and bristles yellowish; claws black, base reddish; pulvilli and empodia reddish.

Wings hyaline; veins brown; anterior crossvein at 44/89 length of discal cell; posterior cells 1 and 4 closed, petioles slightly longer than anterior crossvein; anal cell closed and short petiolate.

FEMALE. Length 27 mm. Abdomen red; base of tergite 1, side of 2-5, and dorsum of 2-4 with central spot becoming smaller apically, black; 6-8 bare of pollen; apical spines brown. Femora red; small posterior spot on fore, anterior spot on middle, and anterior basal 2/3 of hind, femora black.

The description applies mainly to specimens from Arizona and New Mexico. Specimens from Colorado and north and east, are darker and the bare spots on the sides of the abdomen are larger. The southern specimens are more heavily pollinose, the bare spots are smaller and begin on tergite 3 instead of 2, and a few specimens are without bare spots. Back (1909) says, "segments 2-7 of the male, and segments 2-5 of the female, abdomen with bare polished spots. These spots are characteristic of the species (so far as my material goes);".

It seems possible that the following belong here but the specimens or types will have to be examined to be certain that they are synonyms:

(1) Scleropogon helvolus Jones, 1907, Trans. Amer. Entomol. Soc., vol. 23, p. 273. Note and specimens from Glen, Sioux County, Nebraska (P. R. Jones). The style is about half the length of the third antennal segment, while S. similis Jones (1907) with the style as long as the third segment probably belongs under S. helvolus Loew.

(2) Stenopogon (Scleropogon) uhleri Banks, 1920, Canad. Entomol., vol. 12, p. 66. Type, male, hills west of Denver, 18 August (P. R. Uhler), MCZ. This could be the same specimen listed by Back (1909) under picticornis from Colorado: "one female from Denver Highlands (August 18), at the M. C. Z."

(3) Stenopogon petilus Martin, 1968a, Proc. Calif. Acad. Sci., vol. 35, p. 392, figs. 11, 18, 30. Types, male and female, Mexico, Sonora, 20 miles N. of Guaymas, Highway 14, Kilometer 2009, 4 September 1962 (Dorothy W. and Charles H. Martin), CAS. Paratypes, 2 males, 2 females, same data.

DISTRIBUTION. Arizona, California, Colorado, Kansas, Montana, Nevada, New Mexico, South Dakota, Texas, Wyoming, and Mexico. The Mexican records are as follows: Baja California Sur (ten localities near and south of La Paz, 7 October to 2 November 1968; E. L. Sleeper and F. J. Moore; CSCLB), Chihuahua and Sonora; August to November but mostly September. No specimens have been seen from California, the type locality (Back 1909 reported a pair from California, July 30, in the collection of Professor C. W. Johnson), but it is quite common in Arizona and New Mexico.

Lavigne and Holland (1969) give data on the habits and prey in Wyoming; and photographs of the fly at rest on grass, with prey, in copulation, and in oviposition.

See note under S. haigi.

Scleropogon subulatus (Wiedemann).
(Figures 224-227.)

Dasypogon subulatus Wiedemann, 1828, Auss. Zweifl. Ins., vol. 1, p. 375. Type ?, Georgia, Vienna Museum?.

Stenopogon subulatus Back, 1909, Trans. Amer. Entomol. Soc., vol. 35, p. 202. Description of male and female. Reports from Georgia (Morrison), Tifton, Georgia, September 9 (C. W. Johnson); Lumberton, North Carolina, September 6 (F. Sherman); Colorado (?).

Bromley (1934) reports from Texas: "Fairly common in grassland or open woods in sandy uplands. June 26-Aug. 27." College Station. Jackson County, August (Duncan) (Cole).

Bromley (1950) reports from Florida: Dunellon, 12 July 1939 (J. D. Beamer, D. E. Hardy). "In open sandy woods alighting on bushes or tall grass."

MALE. Length 22 mm. Head black, face and lower part of proboscis, reddish; densely whitish pollinose, frons brown. Hairs and bristles reddish, on frons and ocellar tubercle,

brownish. Antennal segments 1-2 reddish, 3 and style black; hairs reddish; segments 32-17-65-21, sensory area 21, in length (fig. 224).

Mesonotum red, central and intermediate stripes black; yellowish gray pollinose. Hairs on central and intermediate stripes black, semierect, and as long as antennae 2, longer posteriorly; hairs otherwise reddish. Bristles reddish; 8 short humeral; 4 posthumeral; 4-5 presutural; 4 reddish and 6 brownish to black supraalar; 4 reddish postalar; 5 posterior dorsocentral black. Pleura and coxae mostly reddish, densely gray pollinose; hairs and bristles reddish. Scutellum red, grayish pollinose, 6 reddish and 1 black marginal bristles.

Abdomen yellowish red; whitish pollinose, narrowly denser on lateral margins and posterior margins of tergites 2-5. Short hairs reddish; bristles reddish, 7-14-8 laterally on tergites 1-3. Sternites yellowish red, thinly white pollinose; hairs golden, long erect on 1-2. Genitalia yellowish red; hairs golden, a few black at apex of upper and lower forceps (figs. 225, 226, 227).

Legs yellowish red; dorsum of fore except apex, dorsum, and anterior side on basal half of middle, and anterior side and dorsum on basal 3/4 of hind, femora black. Hairs reddish. Bristles black; mostly reddish on fore legs, about half reddish on middle legs. Claws black, base reddish; pulvilli and empodia, reddish.

Wings brown; veins brown; anterior crossvein at 45/87 length of discal cell; posterior cell 1 broadly open; posterior cell 4 closed, the petiole subequal to length of anterior crossvein; anal cell narrowly open.

FEMALE. Length 21 mm. Hairs and bristles of head yellowish white, on frons and ocellar tubercle brown to black. Mesonotal and scutellar bristles golden; coxal bristles white. Dorsum of tergites 6-8 brownish black; 7-8 bare of pollen; apical spines reddish brown.

DISTRIBUTION. Alabama, Florida, Georgia, Kansas, North Carolina, Oklahoma, South Carolina, and Texas; June to September.

Described from specimens from northeastern Florida (Hilliard). The color of the abdomen of the coastal specimens tends to be yellow and the wings dark brown; inland specimens have the abdomen yellowish brown and the wings lighter brown; however, there are exceptions in each area.

One male from Gainesville, Florida, 21 July 1957 (Bill Platt), FSCA, has the mystax black with the oral bristles golden, and the upper occipitals black. Otherwise the characters agree with S. subulatus but it indicates that it might merge with S. floridensis which so far has only been found farther south in Florida. This specimen has small clear spots in the wing cells and indications of these spots were noted in other specimens from the east.

Scleropogon texanus (Bromley).
(Figures 228-231.)

Stenopogon texanus Bromley, 1931, Annals Entomol. Soc. Amer.,

vol. 24, p. 431. Types, male, Dilley, Texas, May 6, 1920 (H. J. Reinhard), female, same data, May 5, 1920, OSU. Paratypes: Marble Falls, Texas, April 4, 21, 1923 (C. A. Harned); Christoval, Texas, April 27, 1915 (A. K. Fisher).

Bromley (1934) adds this locality from Texas: San Angelo, April 12, 1932 (S. E. Jones).

Martin (1968a) reports this species from Mexico: Tamaulipas, Rosalva, 16 and 22 May 1952 (M. Cazier et al.), AMNH.

MALE. Length 18 mm. Head black, sides of gibbosity below reddish; grayish white pollinose, below antennae yellowish and on frons light brown. Hairs and bristles yellowish white, on frons and ocellar tubercle, black. Antennae red; hairs black; segments 23-12-49-16, sensory area 16, in length (fig. 228).

Mesonotum red, central and intermediate stripes black; grayish brown pollinose. Hairs black erect, anteriorly as long as antennae 1, longer posteriorly; a few yellowish on humeri and lateral margins. Bristles yellowish; 6 humeral; 4 posthumeral; 4 presutural (1 black); 7 supraalar (2 brown or black); 5 postalar; 6 posterior and 4 anterior dorsocentral (mostly black). Pleura and coxae black with red spots; densely grayish pollinose; hairs and bristles yellowish. Scutellum black; grayish pollinose; 6 yellowish marginal bristles.

Abdomen reddish; sides of tergites 2-3 basally and narrow sides of remainder, black; grayish pollinose, denser on the sides. Short hairs golden; bristles golden, 9-7-5 on tergites 1-3, very weak on 2-3. Sternites red; grayish pollinose; hairs yellowish, long erect on 1-3. Genitalia red; hairs brown (figs. 229, 230, 231).

Legs red; all femora with anterior black stripe ending well before apex. Hairs yellowish; brown dorsally on hind femora; black on hind tibiae and metatarsi. Bristles black, about 20 short ones below on fore and middle femora; part yellowish on fore tibiae and on fore and middle tarsi. Claws black, base reddish; pulvilli yellowish; empodia reddish.

Wings brown; veins brown; anterior crossvein at 30/57 length of discal cell; posterior cells 1 and 4 broadly open and anal cell narrowly open.

FEMALE. Length 18 mm. Hairs on frons and antennal segment 1 mostly yellowish. Mesonotal bristles mostly white except dorsocentrals, mostly black; 7 white scutellars. Hairs on tergites 5-6 in part and on 7 mostly, black; sternite 7 with black hairs apically; apical spines black. Bristles below on fore and middle femora about half reddish. Anterior crossvein at 33/55 length of discal cell.

DISTRIBUTION. NEW MEXICO: Cloudcroft, 27 June 1940 (L. J. Lipovsky), 1 male, USNM; Cloudcroft, Sacramento Mountains, 1 July 1940 (D. G. Hall), 2 females, USNM. TEXAS: Christoval, paratype female, USNM; Dunlay, 23 March 1935, 2 males, 2 females, CU, JW; Edwards County: Chevy Slei Ranch?, 14 April 1965 (P. H. Timberlake), 1 female, UCR; Randall County: Palo Duro Canyon S. P., 12 May 1961 (Lloyd M. Martin), 1 female, LACM; Rock Springs, 17 April 1917, Bishop no. 8632, 1 female, USNM; Terrell County: Downie Ranch, 10, 20 May 1912

(J. D. Mitchell) 1 male, 1 female, USNM. MEXICO: Hidalgo, Jacala, 5000', 28 June 1939 (Haag) 1 female, USNM; Tamaulipas (see above).

The numerous black bristles below on the fore and middle femora is the most striking character of this species; the females from New Mexico have these bristles in part reddish.

LITERATURE CITED

ADISOEMARTO, SOENARTONO
1967. The Asilidae (Diptera) of Alberta. Quaestiones Entomologicae, vol. 3, pp. 3-90, figures 1-306.

BACK, ERNEST A.
1909. The robber-flies of America north of Mexico, belonging to the subfamilies Leptogastrinae and Dasypogoninae. Transactions of the American Entomological Society, vol. 35, pp. 137-400, plates I-XI.

BANKS, N.
1920. Descriptions of a few new Diptera. The Canadian Entomologist, vol. 52, pp. 65-67.

BONHAG, PHILIP F.
1949. The thoracic mechanism of the adult horsefly (Diptera: Tabanidae). Cornell University Agricultural Experiment Station, Ithaca, New York, Memoir 285, pp. 1-39, 25 figures.

BROMLEY, S. W.
1931. New Asilidae, with a revised key to the genus Stenopogon Loew: (Diptera). Annals of the Entomological Society of America, vol. 24, pp. 427-435.
1934. The robber flies of Texas (Diptera, Asilidae). Annals of the Entomological Society of America, vol. 27, pp. 74-113, plates I-II.
1937. The genus Stenopogon Loew in the United States of America (Asilidae: Diptera). Journal of the New York Entomological Society, vol. 45, pp. 291-309, figures 1-4.
1950. Florida Asilidae (Diptera) with description of one new species. Annals of the Entomological Society of America, vol. 43, pp. 227-239, plate 1.
1951. Asilid notes (Diptera), with descriptions of thirty-two new species. American Museum Novitates, no. 1532, pp. 1-36, figures 1-8.

BROOKMAN, B.
1941. A new Californian Stenopogon (Diptera, Asilidae). The Pan-Pacific Entomologist, vol. 17, pp. 78-80.

BROWN, C. J. D.
1929. A morphological and systematical study of Utah Asilidae. Transactions of the American Entomological Society, vol. 54, pp. 295-320, plates 28-30.

COLE, F. R.
1958. Prey of robber flies of the genus Stenopogon (Diptera: Asilidae). The Pan-Pacific Entomologist, vol. 34, pp. 176-178.

COLE, F. R., and A. L. LOVETT
1921. An annotated list of the Diptera (flies) of Oregon. Proceedings of the California Academy of Sciences, vol. 11, pp. 197-344, 54 figures.

COLE, F. R., and A. E. PRITCHARD
1964. The genus Mallophora and related Asilid genera in North America (Diptera: Asilidae). University of California Publications in Entomology, vol. 36, pp. 43-100, figures 1-11, plates 1-4.

COQUILLETT, D. W.
1904a. Diptera. In C. F. Baker, Reports on Californian and Nevadan Diptera, I. Invertebrata Pacifica, vol. 1, pp. 17-39.
1904b. New north American Diptera. Proceedings of the Entomological Society of Washington, vol. 6, pp. 166-192.

CRAMPTON, G. C.
1942. Guide to the insects of Connecticut. Part VI. The Diptera or true flies of Connecticut. First Fascicle. The external morphology of the Diptera. State of Connecticut. State Geological and Natural History Survey Bulletin, no. 64, pp. 10-165, figures 1-14.

ENGEL, E. O.
1925-1930. Asilidae (Fam.) 24. In E. Linder (editor) Die Fliegen der palaearktischen Region [q.v.]. Vol. 4, pt. 2. Stuggart. Parts published at various dates; Stenopogon in 1929, pp. 280-305, figs. 218-220b.

HARDY, D. ELMO
1942. New Western Asilidae. The Journal of the Kansas Entomological Society, vol. 15, pp. 57-61, figures 1-6.

HULL, F. M.
1962. Robber flies of the world. The genera of the family Asilidae. Smithsonian Institution. United States National Museum, Bulletin 224, part 1, pp. i-x, 1-430, figures 1-29, plate 1; part 2, pp. 431-907, figures 30-35 and 1-2536.

JAMES, M. T.
1941. The robber flies of Colorado (Diptera, Asilidae). The Journal of the Kansas Entomological Society, vol. 14, pp. 27-36, 37-53.

JONES, P. R.
1907. A preliminary list of the Asilidae of Nebraska, with description of new species. Transactions of the American Entomological Society, vol. 33, pp. 273-286.

LAVIGNE, R. J.
1963. Notes on the behavior of Stenopogon coyote Bromley with a description of the eggs. The Pan-Pacific Entomologist, vol. 39, pp. 103-107, figure 1.

LAVIGNE, R. J., and F. R. HOLLAND
1969. Comparative behavior of eleven species of Wyoming robber flies (Diptera: Asilidae). University of Wyoming, Agricultural Experiment Station, Science Monograph 18, pp. 1-61, 4 tables, 58 figures.

LOEW, H.
1847. Ueber die europaischen Raubfliegen (Diptera-Asilica). Linnaea Entomologica, vol. 2, pp. 384-568, 587-591.
1866. Diptera Americae septentrionalis indigena. Centuria septima. Berliner Entomologische Zeitschrift, vol. 10, pp. 1-54.
1872. Diptera Americae septentrionalis indigena. Centuria decimena. Berliner Entomologische Zeitschrift, vol. 16, pp. 49-115.
1874. Neue nordamerikanische Dasypogonina. Berliner Entomologische Zeitschrift, vol. 18, pp. 353-377.

MARTIN, C. H.
1968a. Revision of Stenopogon Loew (= Scleropogon Loew) as represented in Mexico (Diptera: Asilidae). Proceedings of the California Academy of Sciences, vol. 35, pp. 371-400, figures 1-35.
1968b. A revision of Ospriocerus (Diptera: Asilidae). Proceedings of the California Academy of Sciences, vol. 35, pp. 401-424, figures 1-66.
1970. The characters of Stenopogon (= Scleropogon) and the subgenus Ospriocerus (Diptera: Asilidae). Journal of the Kansas Entomological Society, vol. 43, pp. 12-19.

MARTIN, C. H., and J. WILCOX
1965. Asilidae. In Alan Stone et al., A catalog of Diptera of North America. Asilidae. United States Department of Agriculture, Agricultural Handbook no. 276, pp. 360-401.

OSTEN SACKEN, C. R.
1878. Catalogue of the described Diptera of North America. (Edition 2). Smithsonian Miscellaneous Collections (no. 270), vol. 16, pp. I-XLVI and 1-276.
1884. An essay of comparative chaetotaxy or the arrangement of characteristic bristles of Diptera. The Transactions of the Entomological Society of London, pp. 497-517, 1 figure.

POWELL, J. A., and G. I. STAGE
1962. Prey selection by Robberflies of the genus Stenopogon, with particular observations on S. engelhardti Bromley (Diptera: Asilidae). Wasmann Journal of Biology, vol. 20, pp. 139-157.

WIEDEMANN, C. R. W.
1828. Aussereuropaische zweiflugelige Insekten, vol. 1, pp. i-xxxii and 1-608, 7 plates. Hamm.

WILCOX, J., and C. H. MARTIN
1945. Contributions from the Los Angeles Museum Channel Islands biological survey. 29. Robber flies

(Diptera, Asilidae). Bulletin of the Southern California Academy of Sciences, vol. 44, pp. 10-17, plate 7.

YOUNG, B. P.
1921. Attachment of the abdomen to the thorax of Diptera. Cornell University Agricultural Experiment Station, Memoir 44, pp. 251-306, plates IX-XXXII (figures 1-76).

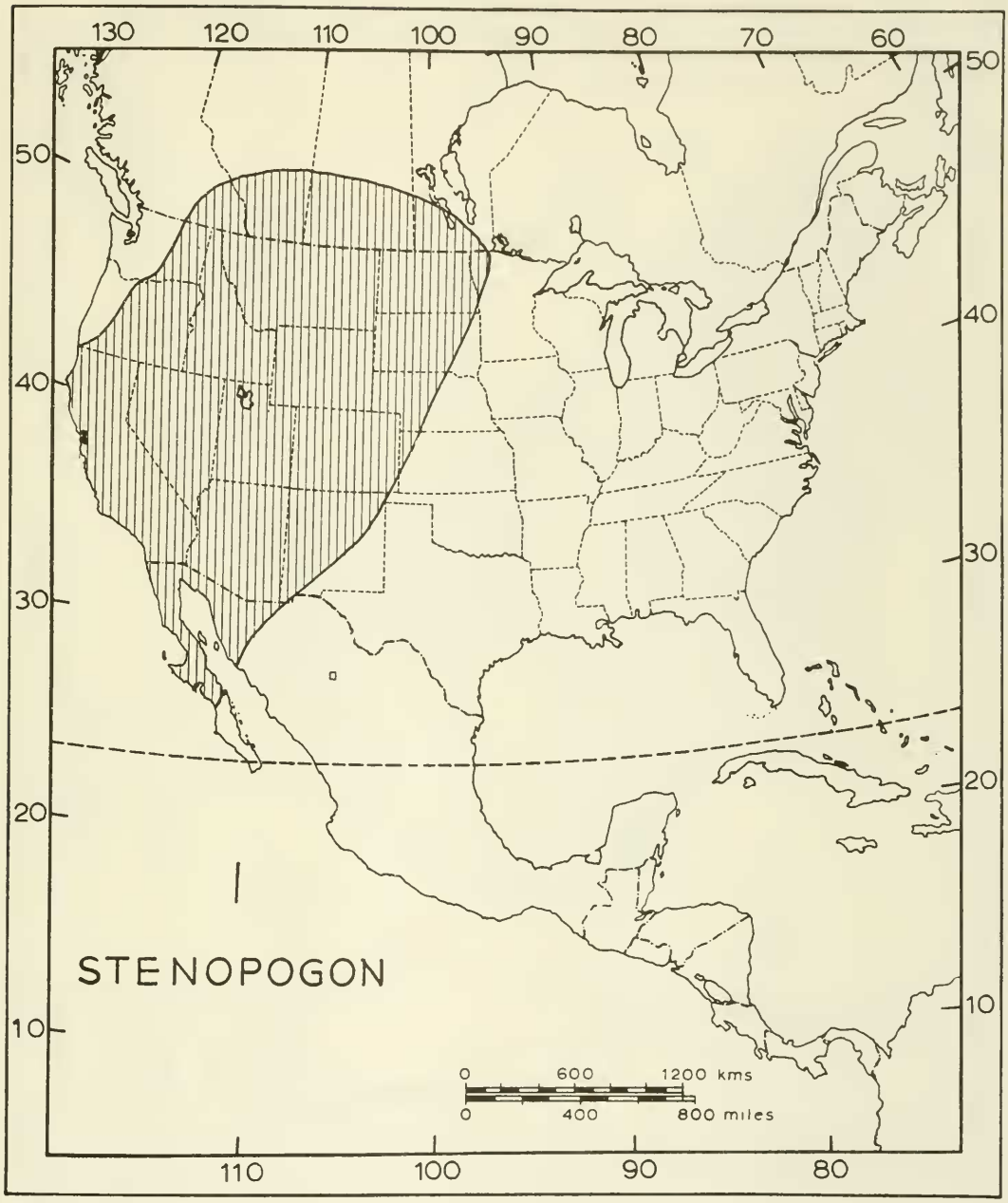


FIGURE 1. Distribution of Stenopogon Loew in North America.

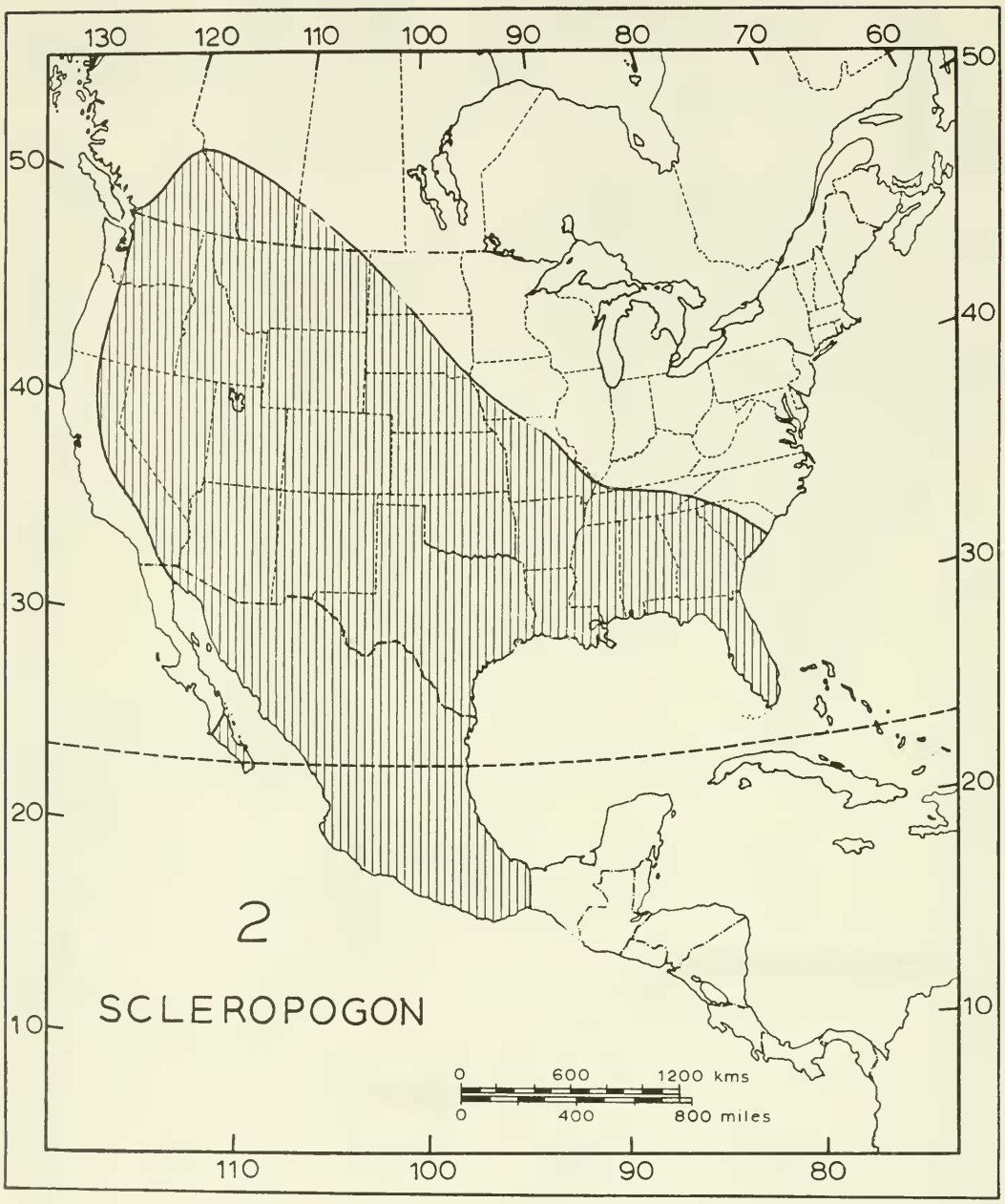


FIGURE 2. Distribution of Scleropogon Loew in North America.

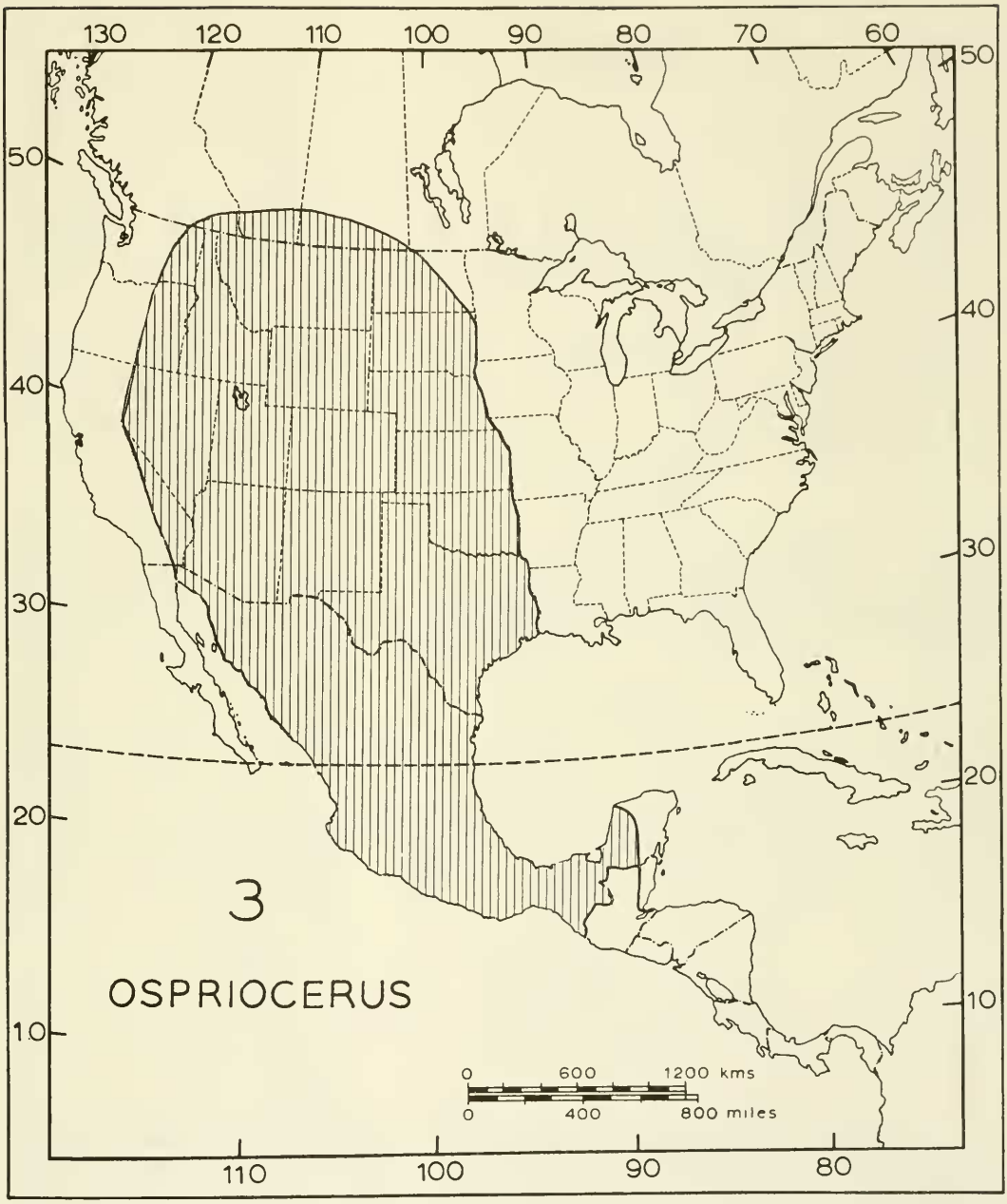
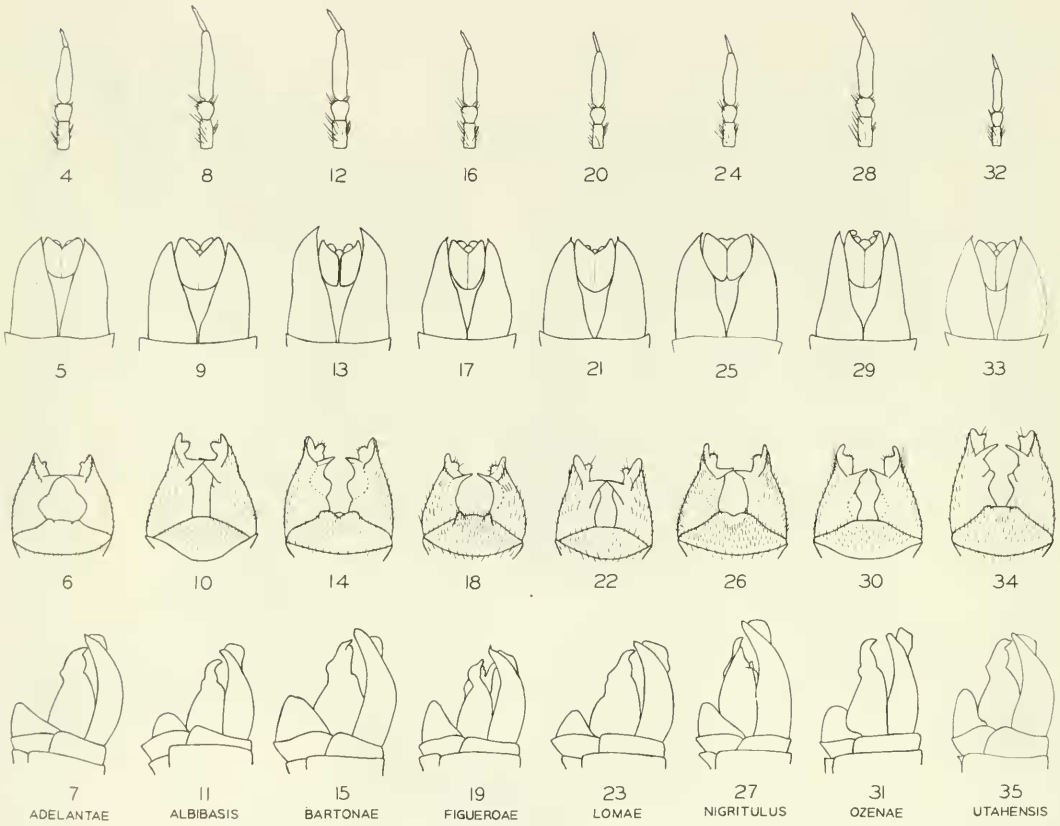
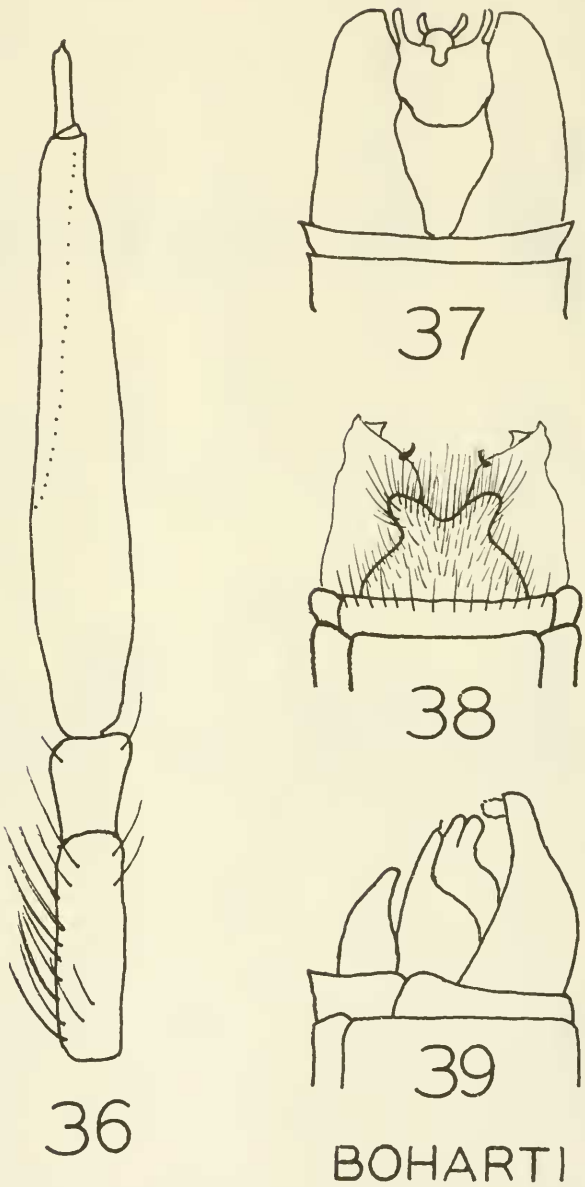


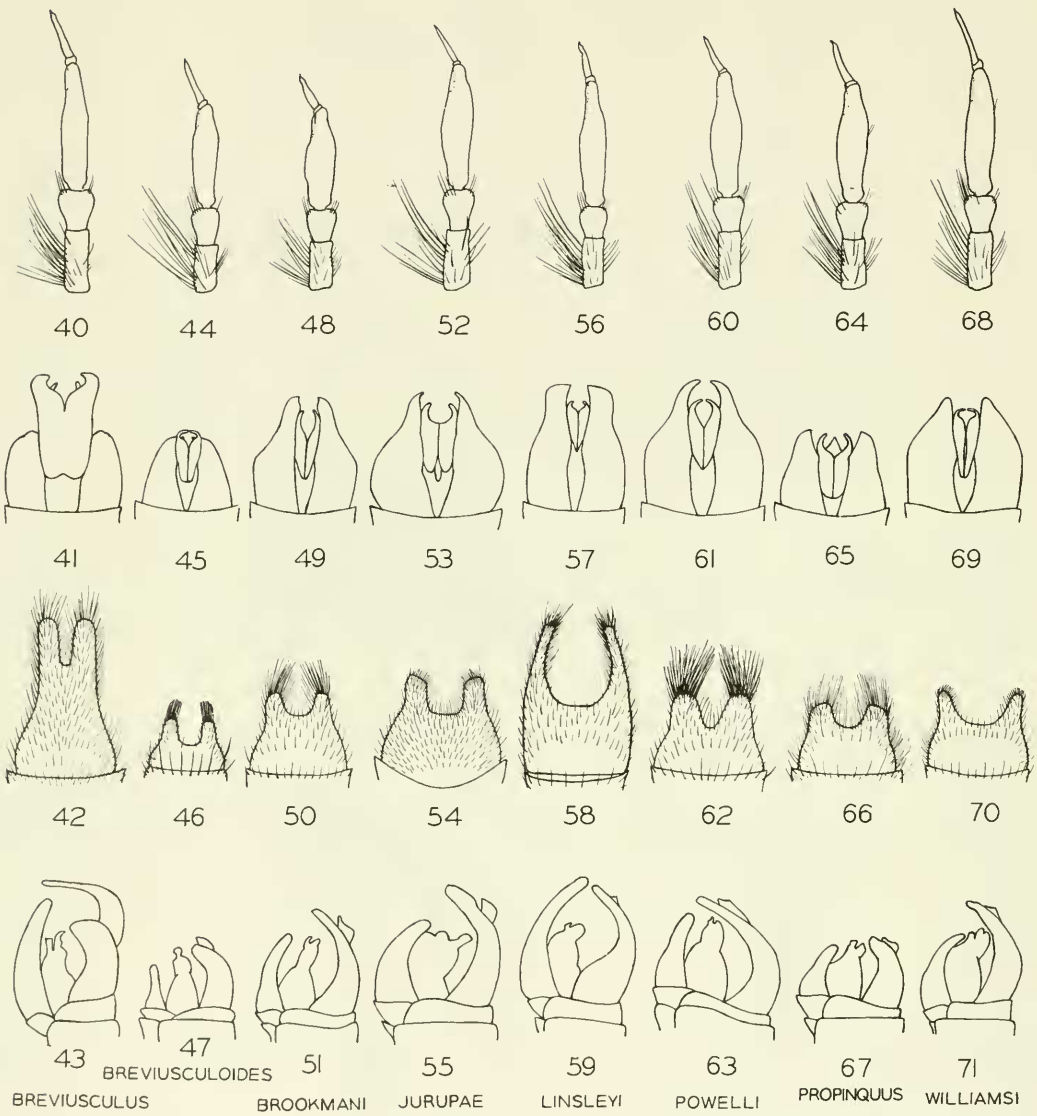
FIGURE 3. Distribution of Ospriocerus Loew in North America.



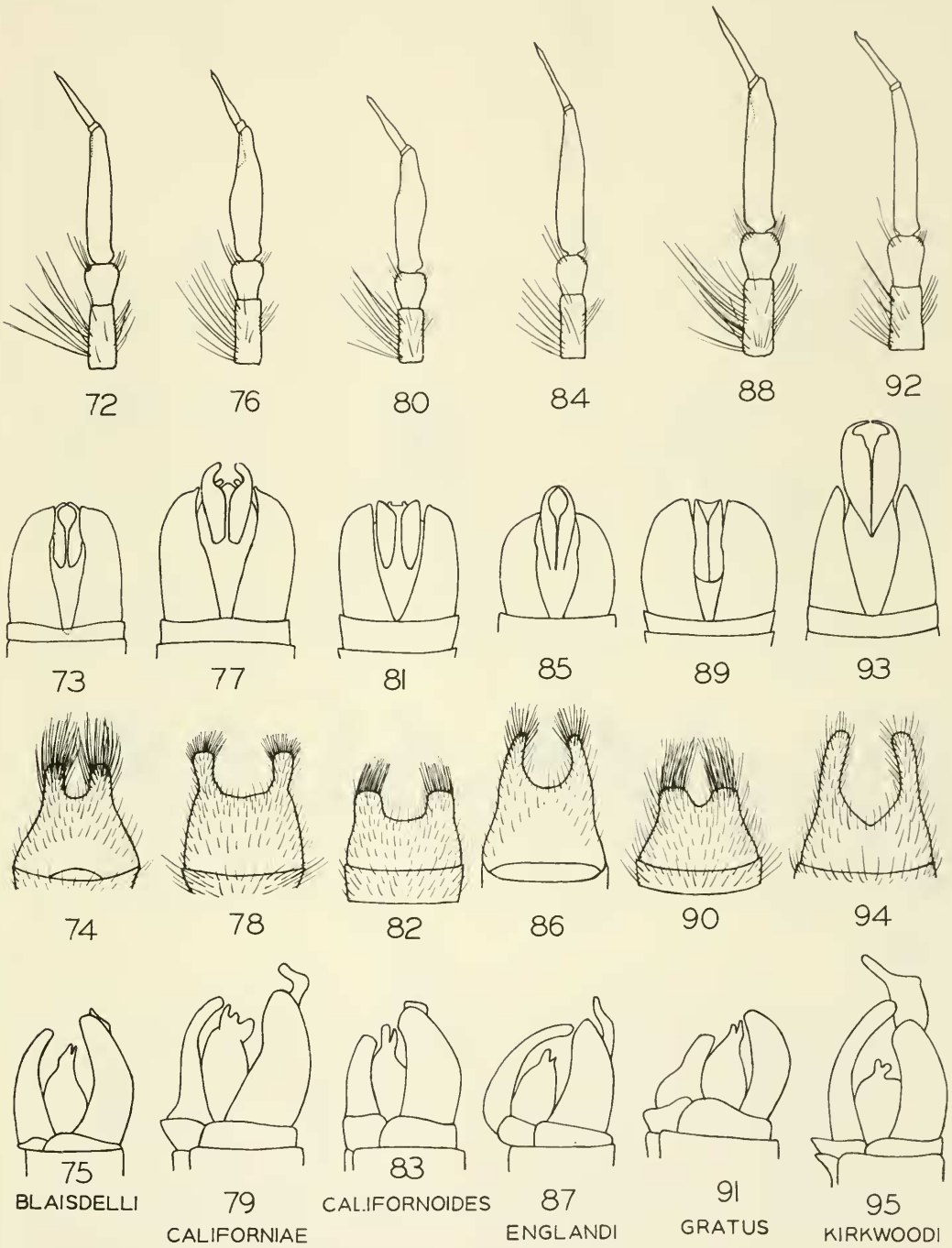
FIGURES 4-35. Albibasis Group of Stenopogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 4-7. S. adelantae, new species. Figures 8-11. S. albibasis Bigot. Figures 12-15. S. bartonae, new species. Figures 16-19. S. figueroae, new species. Figures 20-23. S. lomae, new species. Figures 24-27. S. nigritulus Coquillett. Figures 28-31. S. ozenae, new species. Figures 32-35. S. utahensis Bromley.



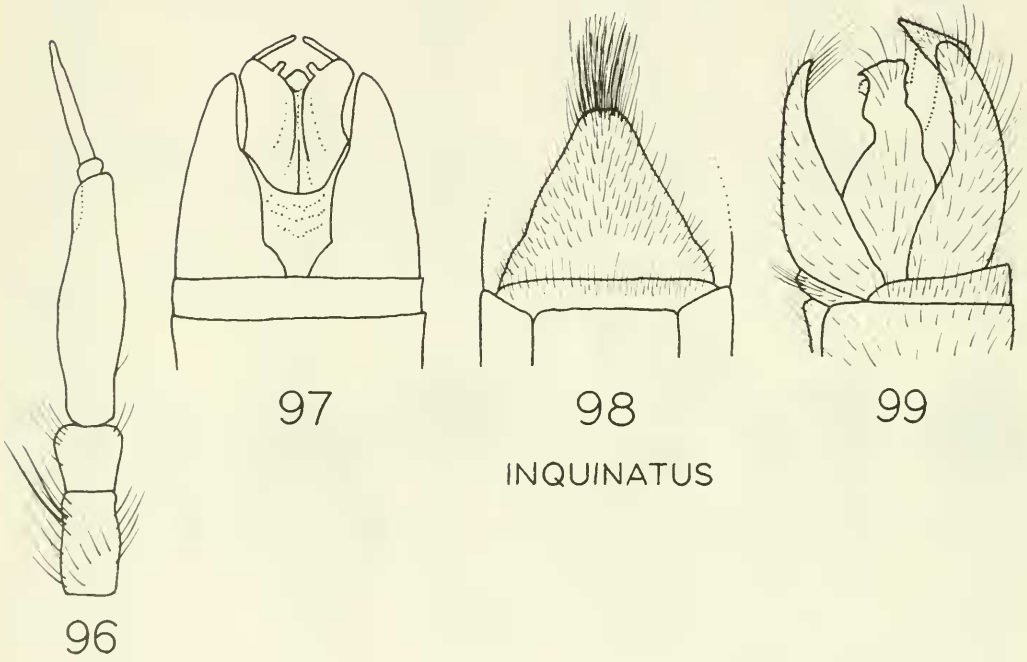
FIGURES 36-39. Boharti Group of Stenopogon Loew.
Figure 36. S. boharti Bromley, lateral view of antennae.
Figure 37. S. boharti Bromley, dorsal view of male genitalia.
Figure 38. S. boharti Bromley, ventral view of male genitalia.
Figure 39. S. boharti Bromley, lateral view of male genitalia.



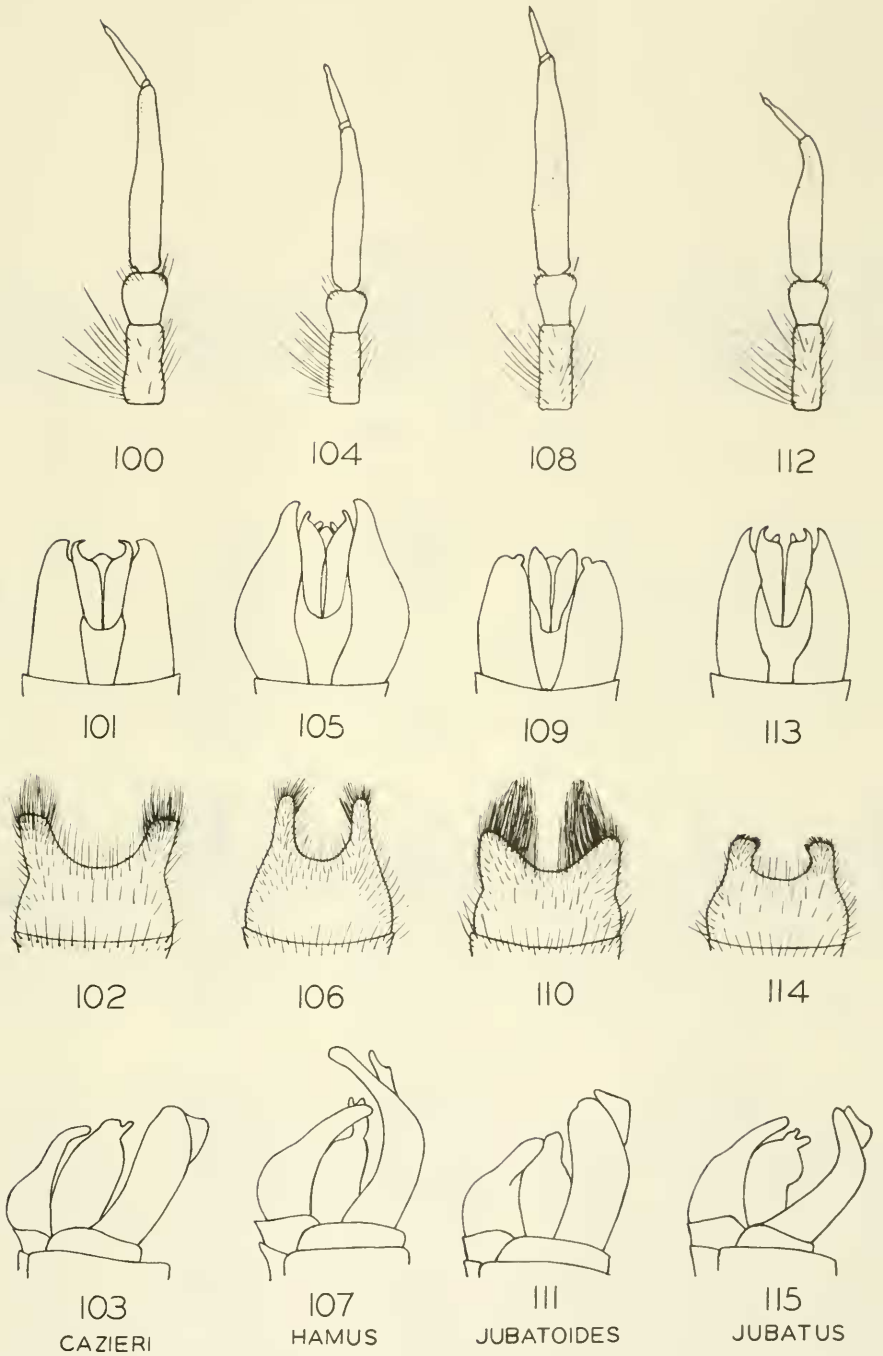
FIGURES 40-71. Brevisculus Group of Stenopogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 40-43. S. brevisculus Loew. Figures 44-47. S. brevisculoides Bromley. Figures 48-51. S. brookmani, new species. Figures 52-55. S. jurupae, new species. Figures 56-59. S. linsleyi, new species. Figures 60-63. S. powelli, new species. Figures 64-67. S. propinquus Bromley. Figures 68-71. S. williamsi, new species.



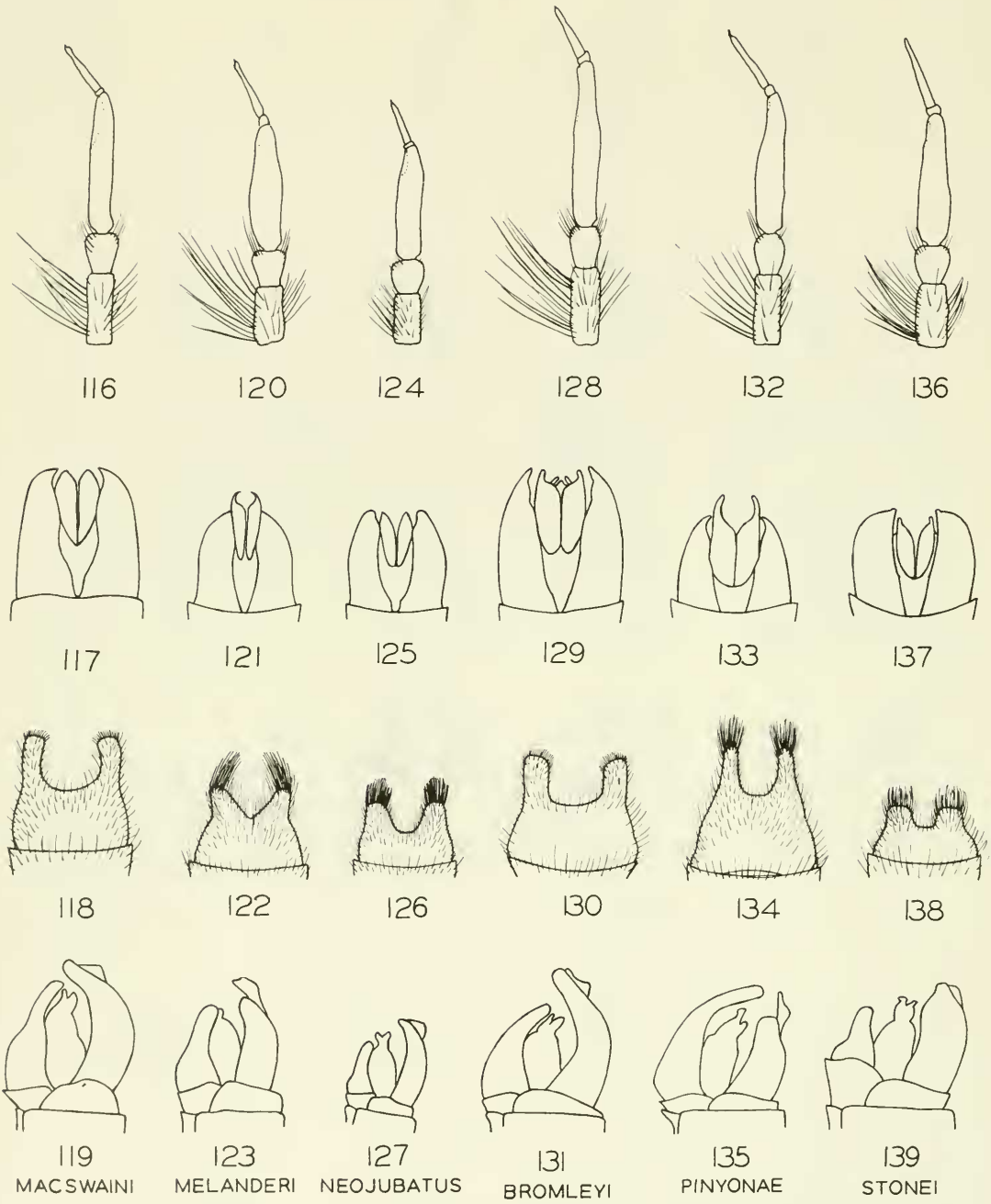
FIGURES 72-95. Californiae Group of Stenopogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 72-75. S. blaisdelli, new species. Figures 76-79. S. californiae (Walker). Figures 80-83. S. californoides Bromley. Figures 84-87. S. englandi, new species. Figures 88-91. S. gratus Loew. Figures 92-95. S. kirkwoodi, new species.



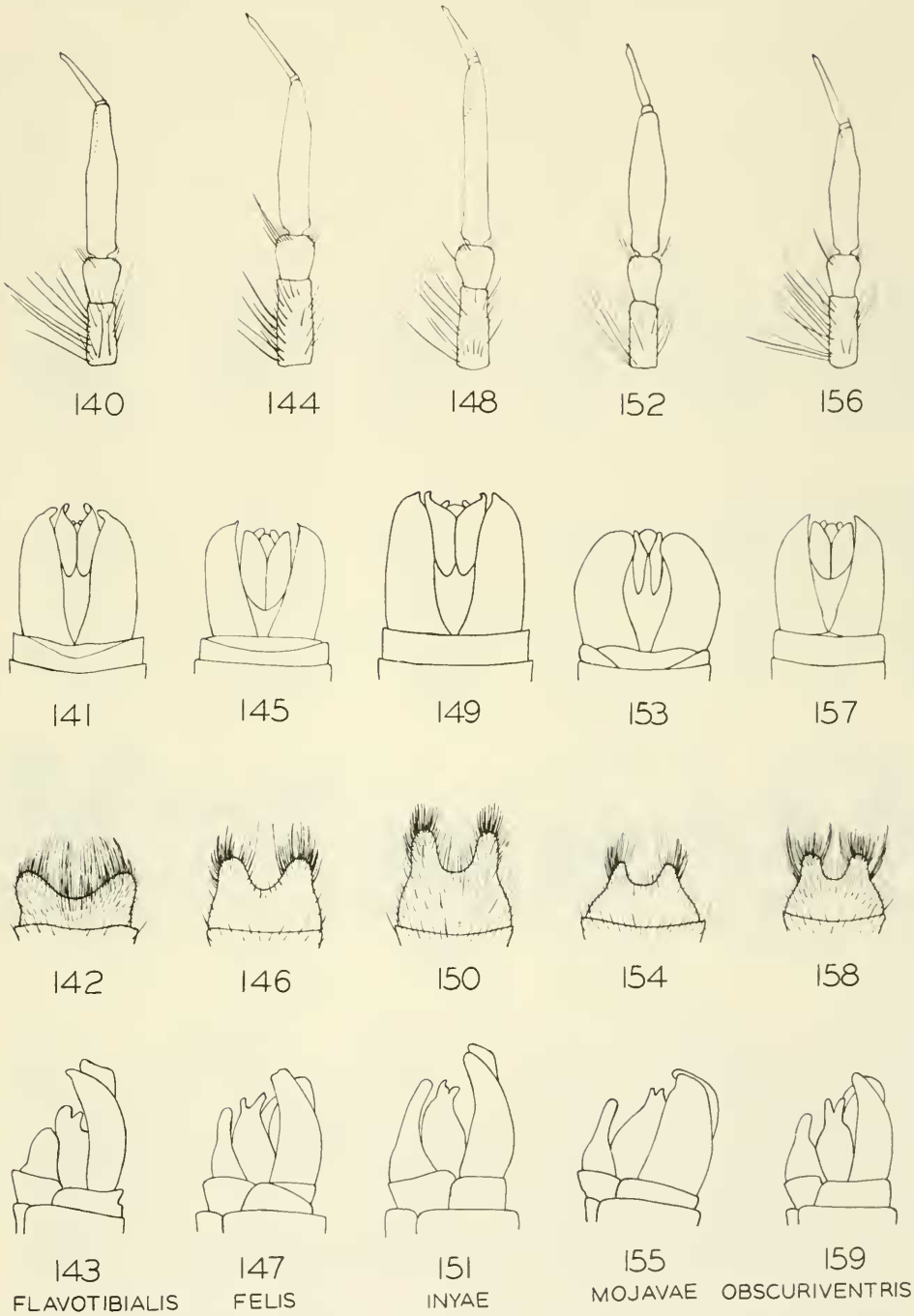
FIGURES 96-99. Inquinatus Group of Stenopogon Loew.
Figure 96. S. inquinatus Loew; lateral view of antennae.
Figure 97. S. inquinatus Loew; dorsal view of male genitalia.
Figure 98. S. inquinatus Loew; ventral view of male genitalia.
Figure 99. S. inquinatus Loew; lateral view of male genitalia.



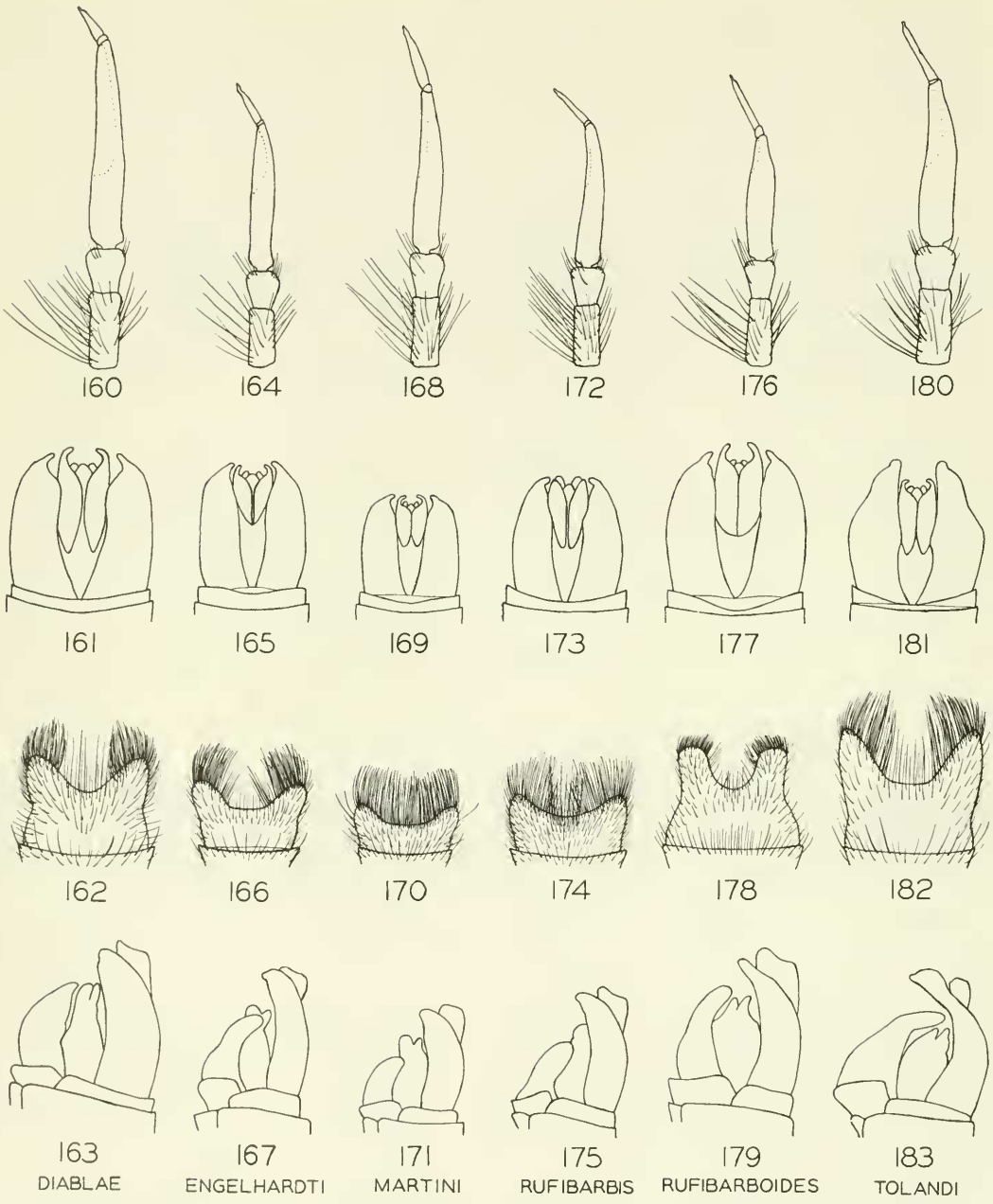
FIGURES 100-115. Jubatus Group of Stenopogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 100-103. S. cazieri Brookman. Figures 104-107. S. hamus Martin. Figures 108-111. S. jubatoides Bromley. Figures 112-115. S. jubatus (Coquillett).



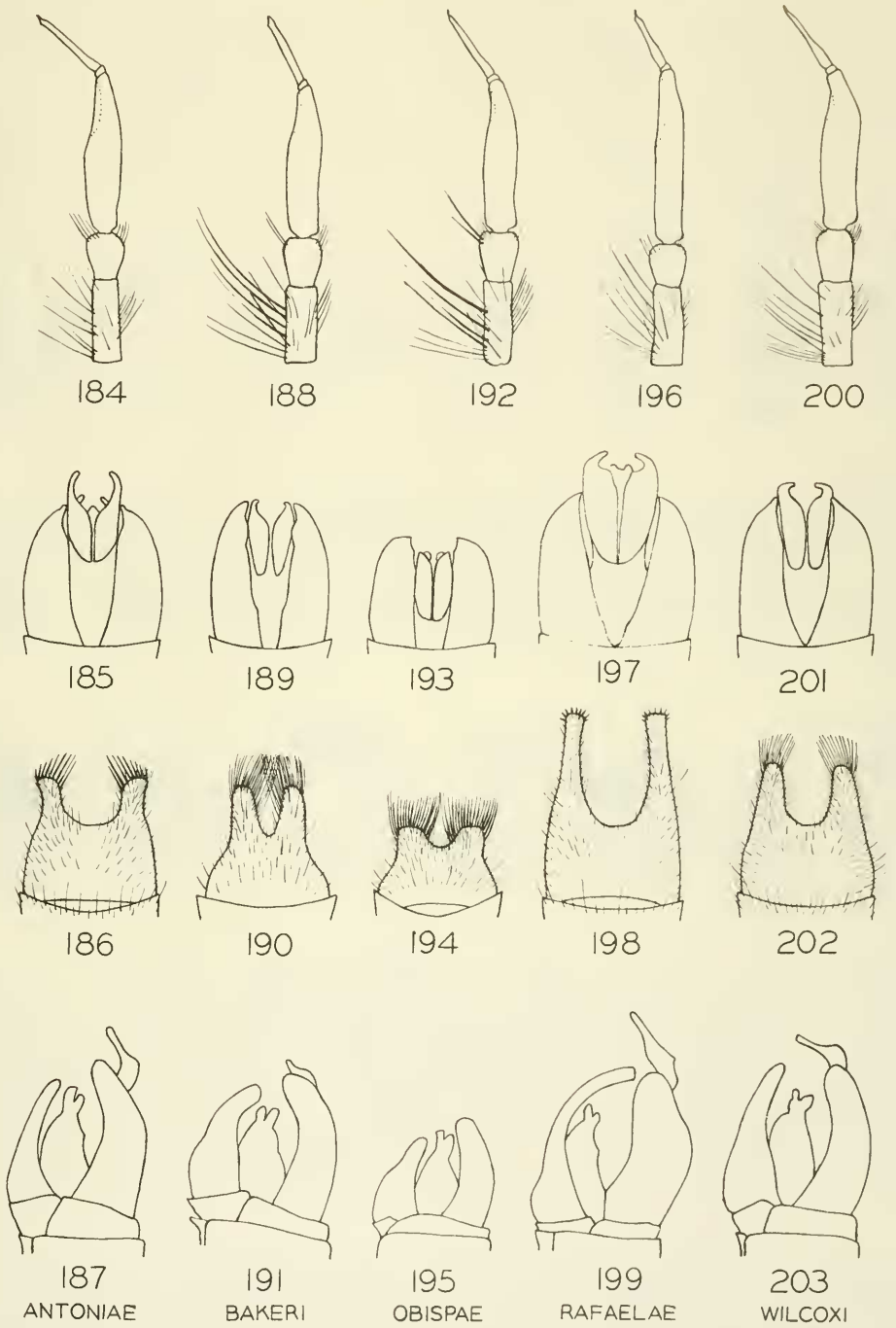
FIGURES 116-138. Jubatus Group of Stenopogon Loew, continued. Figures 116-119. S. macswaini, new species. Figures 120-123. S. melanderi, new species. Figures 124-127. S. neojubatus Wilcox and Martin. Figures 128-131. S. bromleyi, new species. Figures 132-135. S. pinyonae, new species. Figures 136-139. S. stonei Bromley.



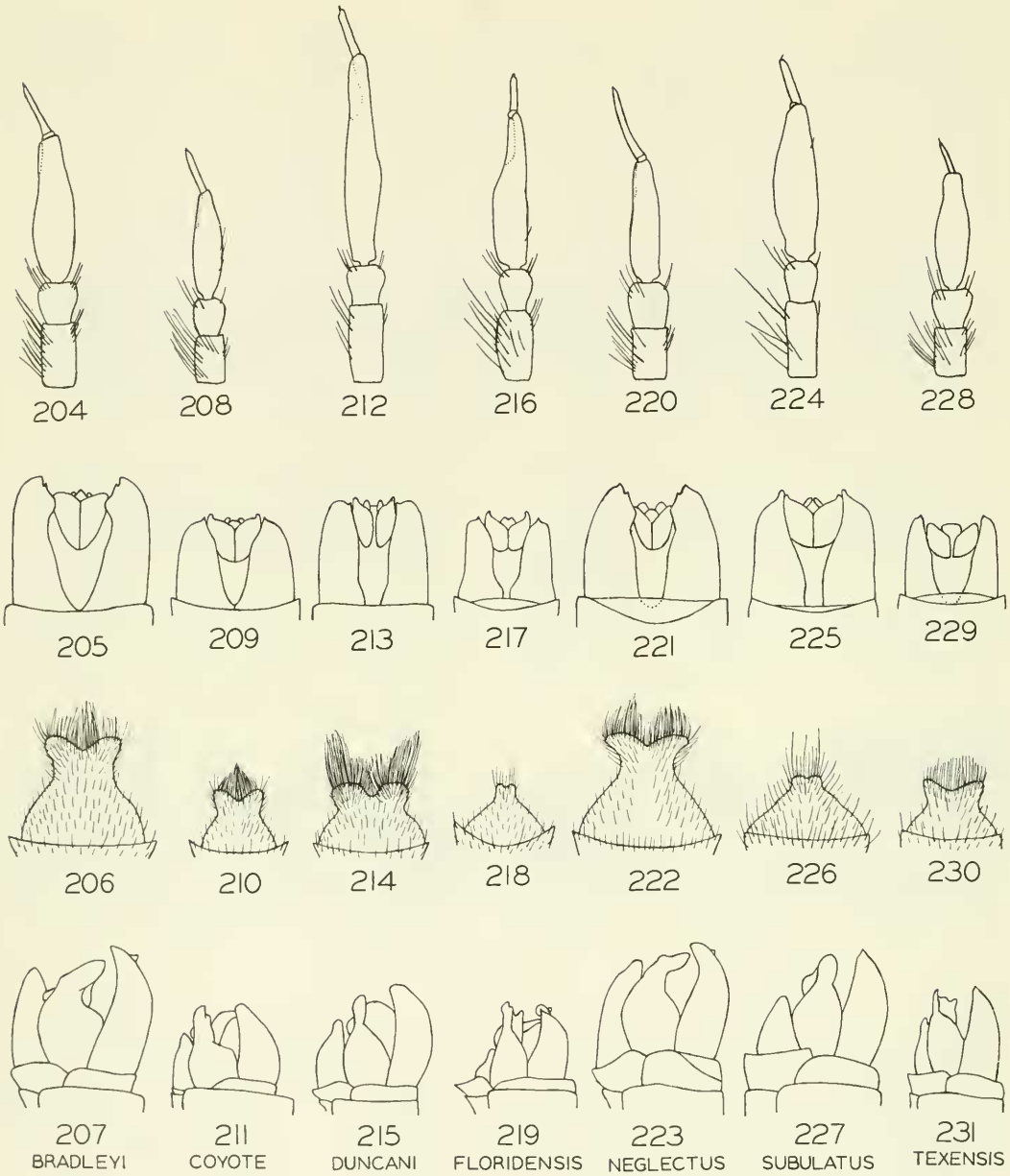
FIGURES 140-159. Rufibarbis and Obscuriventris Groups of Stenopogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia.
Figures 140-143. S. flavotibialis Martin; Rufibarbis Group.
Figures 144-147. S. felis Bromley; Obscuriventris Group.
Figures 148-151. S. inyae, new species; Obscuriventris Group.
Figures 152-155. S. mojavae, new species; Obscuriventris Group.
Figures 156-159. S. obscuriventris Loew; Obscuriventris Group.



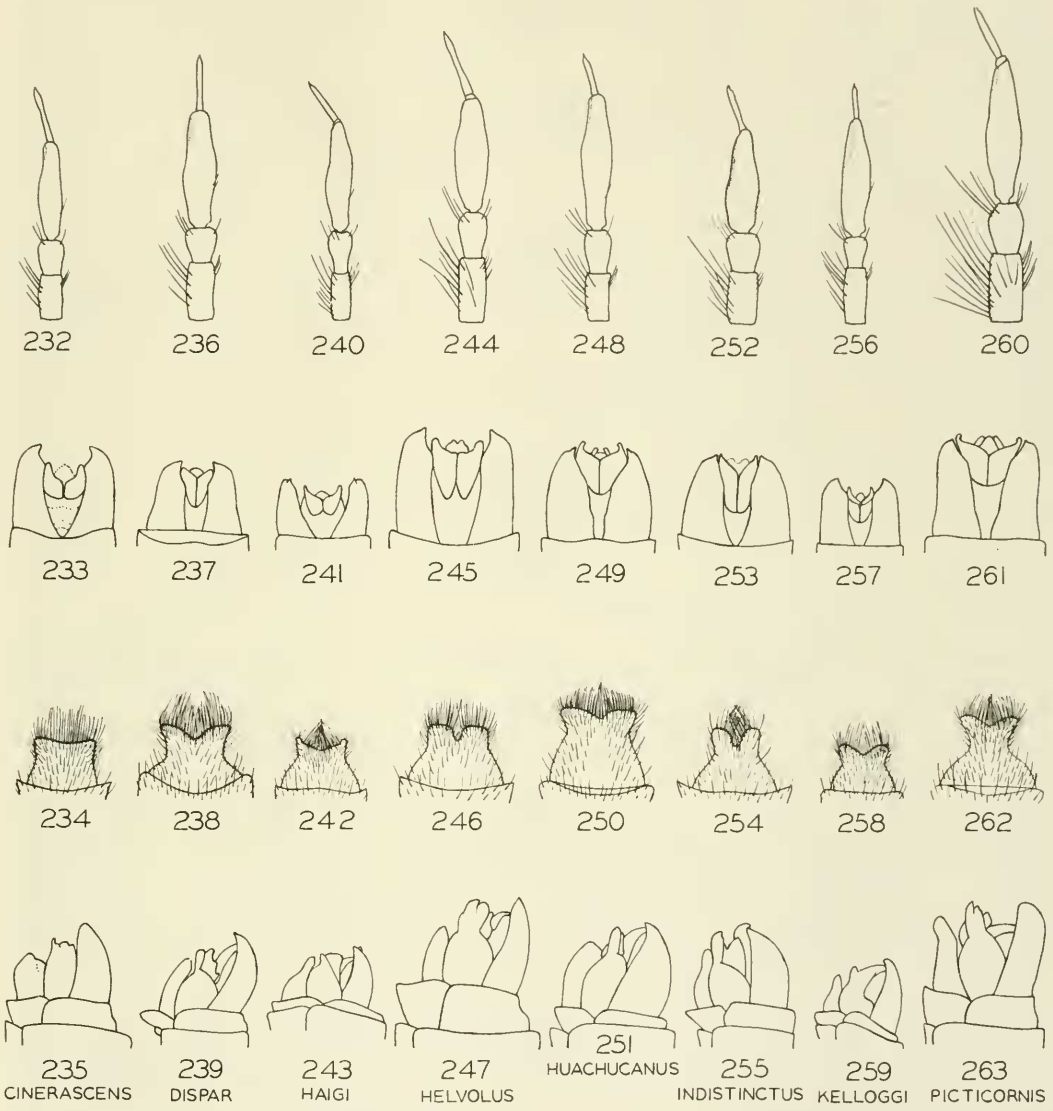
FIGURES 160-183. Rufibarbis Group of Stenopogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 160-163. S. diablae, new species. Figures 164-167. S. engelhardti Bromley. Figures 168-171. S. martini Bromley. Figures 172-175. S. rufibarbis Bromley. Figures 176-179. S. rufibarboides Bromley. Figures 180-183. S. tolandi, new species.



FIGURES 184-203. Wilcoxi Group of Stenopogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 184-187. S. antoniae, new species. Figures 188-191. S. bakeri, new species. Figures 192-195. S. obispae, new species. Figures 196-199. S. rafaelae, new species. Figures 200-203. S. wilcoxi Bromley.



FIGURES 204-231. Subulatus Group of Scleropogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 204-207. S. bradleyi (Bromley). Figures 208-211. S. coyote (Bromley). Figures 212-215. S. duncani (Bromley). Figures 216-219. S. floridensis (Bromley). Figures 220-223. S. neglectus (Bromley). Figures 224-227. S. subulatus (Wiedemann). Figures 228-231. S. texensis (Bromley).



FIGURES 232-263. Truquii Group of Scleropogon Loew. First row, lateral view of antennae; second row, dorsal view of male genitalia; third row, ventral view of male genitalia; fourth row, lateral view of male genitalia. Figures 232-235. S. cinerascens (Back). Figures 236-239. S. dispar (Bromley). Figures 240-243. S. haigi, new species. Figures 244-247. S. helvolus Loew. Figures 248-251. S. huachucanus (Hardy). Figures 252-255. S. indistinctus (Bromley). Figures 256-259. S. kelloggi (Wilcox). Figures 260-263. S. picticornis Loew.

INDEX